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## Natural Growth in Industrial Education

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IN a previous article it was shown how, in the evolution of the American school system, industrial training for the rank and file of the industrial workers had come to have a recognized place thru the establishment of prevocational work in the grades and vocational courses in the regular high schools. This was referred to as the "natural" growth of industrial education, illustrations of which were drawn mainly from the public school system of Massachusetts.

Let us consider that growth of industrial training which, to a certain extent, has been "forced." I refer to the developments which have come thru the stimulus of direct state aid.

State aid for education is not a new thing, but state aid for industrial education was worked out on somewhat new lines in Massachusetts. This would not interest us, as did the early educational history of Massachusetts, were it not for the fact that the Massachusetts industrial education law is being urged as an example of what other states should adopt. In fact, it is frequently claimed that six or eight states have modeled their industrial education laws on the Massachusetts statutes. It is, therefore, pertinent to ask what principles guided the framers of the Massachusetts law.

### The Massachusetts Law.

After a general survey of the industries and the schools of the state, certain principles were decided upon. *First*, that two or three rather distinct types of schools ought to be organized; *second*, that they should be separate from the regular schools; *third*, that local communities establishing any one of these *approved types* should receive liberal state aid therefor, but that no such aid should be given for vocational work in the regular schools, however excellent the results obtained therefrom might be; *fourth*, that any inhabitant of the state, if eligible for membership in a state-aided industrial school, might attend any school in the state, that is, a resident of one town might attend a school in another without paying tuition as is usual in such cases. It is clear that this points to the desirability of developing schools of several varieties rather than of making all the schools similar. Undoubtedly this was appropriate for Massachusetts. Let us see whether it is equally so for other states.

This brings us back again to the question of density of population. The following facts relating to the area and population of a few typical states will repay study. Massachusetts ranks 44th in area and sixth in population.

The United States in 1910 had a population of 30.9 per square mile, the Middle Atlantic states of 193.2, while Massachusetts had a population of 418.7 to every square mile.

| State         | Population | Area    | Inhabitants<br>Per Sq. Mi. |
|---------------|------------|---------|----------------------------|
| Massachusetts | 3,366,416  | 8,039   | 418.7                      |
| Indiana       | 2,700,876  | 36,045  | 74.9                       |
| Illinois      | 5,638,591  | 56,043  | 100.6                      |
| New York      | 9,113,614  | 47,654  | 191.2                      |
| Maine         | 742,371    | 29,895  | 24.8                       |
| New Hampshire | 430,572    | 9,031   | 47.6                       |
| Vermont       | 355,956    | 9,124   | 39.0                       |
| Rhode Island  | 542,610    | 1,067   | 508.5                      |
| Connecticut   | 1,114,756  | 4,820   | 231.2                      |
| Washington    | 1,141,990  | 66,836  | 17.0                       |
| Oregon        | 672,765    | 95,607  | 7.0                        |
| California    | 2,377,549  | 155,652 | 15.2                       |
| Texas         | 3,896,542  | 262,398 | 14.8                       |

The table shows that Massachusetts has an industrial education problem quite different from that, for example, of Indiana. It shows that Illinois is in the Indiana class rather than the Massachusetts class. Even New York is sparsely settled as compared to Massachusetts. If we ask why Massachusetts rather than some other New England state passed the first industrial education law, the table answers us. Of course, Rhode Island is in a class by itself, being largely urban.

Referring again to the Massachusetts policy of establishing different kinds of schools in different cities and permitting the transfer of pupils, we should note that there are in Massachusetts 25 towns of 25,000 inhabitants or over, while Indiana has but five towns of that class. The total population of these towns is almost two-thirds that of the whole state. If equally spaced in Massachusetts, these towns would be but eighteen miles apart, from center to center; in Indiana the towns in the same class if evenly spaced would be 85 miles apart. These figures may not seem important, but I cannot help believing that, in a very genuine sense, they indicate that the laws of the two states ought not to be essentially the same as we are told they are.

### Definitions.

This belief is forced upon one when it is seen how the regulations, with their hard-and-fast definitions relating to the maintenance of these separate industrial



schools—regulations entirely appropriate for Massachusetts—work themselves out in the sparsely settled state. In fact, the whole matter of “definitions” is one which needs thoro discussion and which has, I believe, a bearing on our question regarding the growth of industrial education, for the following reasons:

*First*, these so-called definitions are not definitions at all, but are only “constructions” to be put upon certain words as used in a given law.

*Second*, statements which were made to facilitate the working of a law in one state should not be urged upon the country as a whole for the purpose of determining what direction the industrial education movement ought to take.

*Third*, when used to determine, in advance, what form and direction industrial education may take in a given situation, it is more likely to deter than to stimulate action, unless these “definitions” have been made to suit actual conditions as determined by investigation, as in the case of Massachusetts.

The following is illustrative of these statements:

The Massachusetts law provides that “Independent, industrial, agricultural or household-arts school shall mean an organization of courses, pupils and teachers, under a distinctive management approved by the Board of Education, designed to give either industrial, agricultural, or household-arts education as herein defined.” The law then must further define, for example, household-arts education. It does so as follows: “Independent household-arts school shall mean a vocational school designed to develop on a vocational basis the capacity for household work, such as cooking, household service and other occupations in the household.” The Board of Education is justified in holding any school up to the fulfillment of all the requirements before granting state aid, but no one is justified in saying that a given school in some California city is not a household-arts school because it differs radically from the Massachusetts type in “organization of courses, pupils and teachers” and because it is not put under a “distinctive management.”

#### When to Make Definitions.

The second point above mentioned was the undesirability of attempting to pre-determine, by exact definitions, the future development of industrial education in all parts of the country. We recognize the need of a clear understanding of the terms used to describe the different types of schools, especially where state aid is concerned, but I maintain that definitions should follow, rather than precede, the creation of the type in question. To reverse the order is to endanger the present interest in experimentation.

Progressive educators in all parts of the country have heard the demand that our school work be brought into more immediate and intimate relation with the common life. These educators have attempted to meet the new demand far more energetically than is commonly appreciated, and their experiments have been varied and purposeful. It is to be hoped that nothing in the way of exact definitions may serve to convince us that such experimentation is no longer needed, or that other and

even better ways of meeting the new demand may not be forthcoming as the result of such educational activity.

Referring again to the third point, namely, that when definition precedes experimentation it is likely to retard or to defer action, an example from Indiana may be cited. The Indiana law is interpreted by the State Board of Education, and the interpretation sometimes proves to be more restrictive than the law itself. This, we believe, is due to the fact that neither the law nor the interpretation is based on experimentation in the state. The law states:

“Evening class” in industrial, agricultural or domestic science school or department shall mean a class giving such training as can be taken by persons already employed during the working day, and which in order to be called vocational must in its instruction deal with the subject-matter of the day employment and be so carried on as to relate to the day employment; but evening classes in domestic science relating to the home shall be open to all women over seventeen who are employed in any capacity during the day.

#### A Cause of Failure.

The State Board of Education says that the controlling purpose of an evening class in a state-aided vocational school must be “to fit the worker for more profitable employment in the occupation in which he is actually engaged.” An evening school which provides instruction for wage earners, designed to teach them another more remunerative occupation or trade or *one permitting a higher degree of skill is not eligible for state aid.*

The law provides that “Industrial education shall mean that form of vocational education which fits for the trades, crafts and wage earning pursuits, including the occupations of girls and women carried on in stores, workshops and other establishments.”

Also that “Industrial, agricultural or domestic science school or department shall mean an organization of courses, pupils and teachers designed to give either industrial, agricultural or domestic science education as *herein defined*, under a separate director or head.”

Interpreting this law the State Board of Education says:

“In these schools a close relation must be maintained between theory and practice. There will be *no general departments* of arts or sciences, *no systematic work* in mathematics or drawing. . . . This being the final professional school for the industrial worker, the pupils’ attendance at the school *should be cut as short* as may be consistent with a thoro training for the occupation or trade to be learned. . . . The shop work must be conducted on a *productive or commercial basis*. . . .

It should be clear that these conditions cannot be found except in a few isolated cases, that the needs of the great mass of industrial workers cannot be met under these severe restrictions, and that communities, at first enthusiastic over the prospects of establishing an industrial school or class, finally give up in despair and, being refused state aid for things which they need, decide that no action is desirable at the present time. As



claimed above, the law, or its interpretation acts as a deterrent to the "natural" growth of industrial education.

#### Separation Again.

The formation of exact definitions of types of vocational education would never have been given such prominence, had not the demand for a separation of cultural and vocational courses been brought into the discussion so persistently. I am committed to the proposition that *complete* separation between vocational and general education is both unnecessary and undesirable. While recognizing the fact that, for purposes of theoretical analysis, such separation is imperative and is conducive to clear thinking and definiteness of aim, I maintain that in *practice* the two are rarely to be so clearly distinguished, and that the combination of these two elements is both natural and inevitable. The difference between a vocational and non-vocational class or subject is often merely a matter of emphasis. In actual practice there never has been an industrial school which did not give work that contributed both to the pupil's general equipment and to his special vocational training. The two are never found apart, but always in combination, sometimes one predominating and sometimes the other, but neither ever wholly wanting.

So one is almost inclined to ask whether, if state aid is to be had only at the cost of dividing or separating the two necessary parts of the whole—culture and economic efficiency—it might not be better to forego state aid altogether and to find some other way to *stimulate* the growth of this new form of popular education, of which society stands so much in need.

#### Hastening Natural Growth of Industrial Education.

In other words, may it not be better to find some way of hastening and strengthening the movement in education which we have already discussed, and which we have called the "natural" growth of industrial education?

I believe that this "more excellent way" is to convince the educators, by every available means, of the great educational and vocational need of the unprogressive pupils in the upper elementary and lower high-school grades. The work already done in prevocational and general industrial classes for such children has demonstrated beyond a doubt that these children are not necessarily less able to get an education or less worthy of being educated, but are frequently merely strongly individualistic and lacking in power of adjustment to the present system.

When the excellent and lovable personal characteristics of these pupils has once become apparent to the student of education, and when society shall have demanded that our schools address themselves to the peculiar educational problems presented by these individuals, there can be no question of the ability of American educators to find a solution of all the educational problems which their cases present.

As above noted, the educators have already made much more progress toward the ultimate solution of these problems than is generally believed. And there is

every indication that with all the intelligent and sympathetic study which is now being given to the subject that the public schools will rapidly adjust themselves to meet this new social and educational demand.

While urging the regeneration and amplification of the regular public school system, we should not overlook the great value of the excellent work which has been done, and which will continue to be done, by the newer types of schools separately organized or maintained for giving various forms of vocational education.

#### The Continuation School and the "Eliminated" Child.

One of the most far-reaching effects of such separate schools or systems will be found in their reflex action on the public school system as a whole. Perhaps we need, for example, such excellent demonstrations of a state-wide campaign for the education of the fifty per cent as is to be found in the continuation schools of Wisconsin. A close study of these schools will demonstrate more and more clearly the particulars in which the regular school system has failed and will thereby indicate lines along which it must strengthen its work. For example, in her continuation schools Wisconsin is giving to the children between 14 and 16 years of age, the vast majority of whom have been "eliminated" from the public schools before graduating from the elementary grades, the manual training, and simplified academic work which these pupils should have had two years before. Wisconsin is doing well to supply such instruction to these children now, but the State will eventually come to see that such work as is now being done in the continuation schools must be done in the grades, leaving the continuation schools free to do a much larger and more extended work than is possible while the regular school system remains as it is today.

The Wisconsin Continuation Schools have taught us nothing regarding the methods of educating these children between 14 and 16 that had not been demonstrated with absolute certainty by prevocational schools in other places, which, as was shown in the previous article, was the logical and natural outgrowth of the regular school system. The Wisconsin plan, however, has done the cause of education a great service by collecting in one group, or at least by bringing under one general management, several thousands of these retarded and eliminated children in such a way that an intensive study may be made of their needs, capacities and possibilities. It is extremely gratifying that Mr. Warren E. Hicks, State Director of Industrial Education of Wisconsin, has given to the public, thru his Milwaukee address, published in the September number of THE INDUSTRIAL-ARTS MAGAZINE, such an illuminating picture of this large group of children.

Further study will undoubtedly show that all attempts to establish schools for these children between 14 and 16, whether within or outside of the regular school system, are but phases of the gradual progress which society is making toward universal education. *To be educated*—that is the desired end—and this is the means by which a group until now generally overlooked by our schools, is to be *educated*. As before shown, the education will be both specific and general, both voca-



tional and cultural, but the purpose is, first, last and always, *education* without any qualifying adjectives whatsoever.

In conclusion, we would point out that the natural growth of popular education will be stimulated when all educators become intelligent students of the methods and purposes of the newly organized vocational schools and classes of whatever type, and when they seek to

inject into the present school system as much as may be of the vitality and directness of these new schools. When such study on the part of educators shall have become general, it is not too much to hope that the confidence which is born of the knowledge of the successful work of these new schools will speedily take effect in our regular school system. "Strong action can issue only from strong faith. Only out of certainty comes power."



ORIGINAL DESIGNS BY STUDENTS OF NEW YORK HIGH SCHOOLS  
(FOURTH YEAR, ELECTIVE COURSE).



# INDUSTRIAL ARTS DESIGN

William H. Varnum

(First Article)



HIS and succeeding articles have been written with the view of presenting design from the standpoint of the industrial arts. An instructor generally experiences difficulty in finding the exact word to use when criticising a student's drawing. The student has equal difficulty in understanding the criticism. There is little reason why he should not be confused when the rather ambiguous terms "good-looking, ugly, squatty and stiff" are used to express qualities that can only be expressed in terms of design.

In addition to the lack of understanding between the pupil and the teacher, is the attitude of the average individual "who knows what he likes." He is on an equally insecure footing regarding industrial design. His reason for liking or disliking a certain thing may depend upon some whim or fancy, the popular fashion of the times or a desire to possess a duplicate of something he has seen. As a consumer with purchasing power, he should have the ability to analyze intelligently the contents of catalogs and store windows with the thought of securing the best in industrial art—something that may be accepted as standard one hundred years from now.

It will, therefore, be the intention to present design of industrial character in its simplest form, freed from technicalities or ambiguous statements. It is intended to give the average individual not particularly interested in drawing or design a knowledge of the subject, based upon principles that have survived for hundreds of years in architectural monuments and history.

It is possible that the presentation of these principles may enable the instructor of the public schools to guide his pupils away from the heavy and expensive stereotyped designs, and by clear and simple criticism, lead him to better forms of construction. He may also lead the pupil to design problems harmonizing with his home, thus avoiding the introduction of an inharmonious element into what may possibly be a harmonious setting. The teacher, pupil or layman may use this knowledge of the subject as a basis for criticism or appreciation of the field of the industrial arts.

## Requirements of an Industrial Problem.

In order to start successfully, it is necessary to know what points a good industrial article should possess. Whether one is designing a bird-house, a choco-

*Editors' Note*—This is the first article in an important series which is to embrace the teaching of industrial-arts design in schools.

Mr. Varnum is an artist and teacher of art of many years' experience. His professional training was obtained in the Massachusetts Normal Art School, Harvard University and the Academy Julian of Paris.

His practical experience in the field of industrial design includes five years of mechanical designing and patent office drawing in Boston. He has taught in the Rindge Technical School of Cambridge, in the evening schools of Boston, and in other elementary and secondary schools of the East. In 1903 he organized and directed the School of Fine and Applied Arts of the James Millikin University of Decatur, Ill. He remained here until 1912 when he was appointed assistant professor of drawing and design at the University of Wisconsin in charge of all drawing, design and crafts work in the Department of Manual Arts.

Mr. Varnum has acted as chairman of a committee appointed by the Illinois High School Conference to draft a course of study in drawing, and has also served on similar committees for the Western Drawing and Manual Training Association, and for the Illinois Manual Arts Association.

late set or a gold pendant, it should fulfill three needs: (1) It must be of service to the community or to the individual; (2) It must be made of some durable material; (3) It must possess beauty of proportion, outline and color.

Ruskin said that a line of beauty must also be a line of service. The "stream line body" is the result of the automobilemakers' attempt to combine beauty with service, and that is the attitude that should govern the union of beauty and service in the industrial arts.

## Steps in Design Evolution.

There are three divisions or phases in the designing of the structure and its enrichment. Some objects are carried thru only one of these divisions, while again others are developed thru all three of them.

The first division deals naturally enough with the planning of the constructive or utilitarian lines of an object and its parts. It may be termed Structural or Constructive Design. Questions of how high or how long an object should be to harmonize with its width, the proper placing of rails, shelves and brackets, the determination of the greatest and least diameter of vase forms have to be decided in this period. (Plate I.)

The knowledge of tools and materials, and the manner in which they may be used for constructive purposes, has an influence in the solution of these questions as well as other principles which we shall shortly discuss. Strictly utilitarian objects are seldom carried past this stage of development.

Plate II indicates the next logical division—contour enrichment—or the period of the enrichment of the structural outline or contour. The bounding lines, or contours, of the structure may be enriched in many ways as, for example, curving certain portions to soften the severity of the plain structure. The garden urn and small stool have contours treated in this manner. Chippendale, Sheraton and Hepplewhite furniture, simplified to the accepted range of shop technic, vary the straight lines of mission furniture and come within the possible developments of this division.

The cement fence post at C, Plate II, is a strict utilitarian problem without interest. The posts at D-D enriched by a bevel, have equal utilitarian and increased esthetic interest and value.

Plate III shows the last division of evolution and concerns itself with the application of design to the otherwise complete structure. This division is commonly called applied design and includes decorative design. It is readily seen that this division should be considered after the structure has been carefully planned. To separate this division from the period of structural enrichment we will call it Surface Enrichment.

By this it will be seen that the design may be carried thru the following steps: (1) Blocking in the enclosing lines of the design, as at Figure B, Plate II, adding to this whatever may be needed for structural



PLATE I. THE FIRST MAJOR DIVISION OF INDUSTRIAL-ARTS DESIGN.



A Group of Objects with the Emphasis Placed Mainly upon Structural or Constructive Design Principles.



Classroom Practice in Constructive Design.

purposes, keeping the lines as nearly vertical and horizontal as possible; (2) Enriching and varying the outline or contour. It is well for elementary woodworkers to use this step with extreme caution, while less reserve is necessary in clay and metal; (3) After careful consideration to determine the need of additional decoration, as the last step, applied design may be sparingly used. The following articles will take up these steps in the order stated above.

#### Method of Study.

The ideal method of developing the following principles includes correlated activity in the shop. As the technic of the individual improves, the wider use of design principles will be found to accompany and parallel his increasing skill.

#### The Primary Mass.

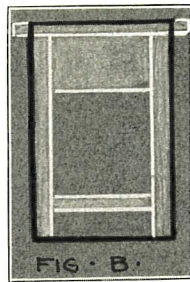
In observing a building, one seldom notices details of structure but sees the large mass as it is silhouetted



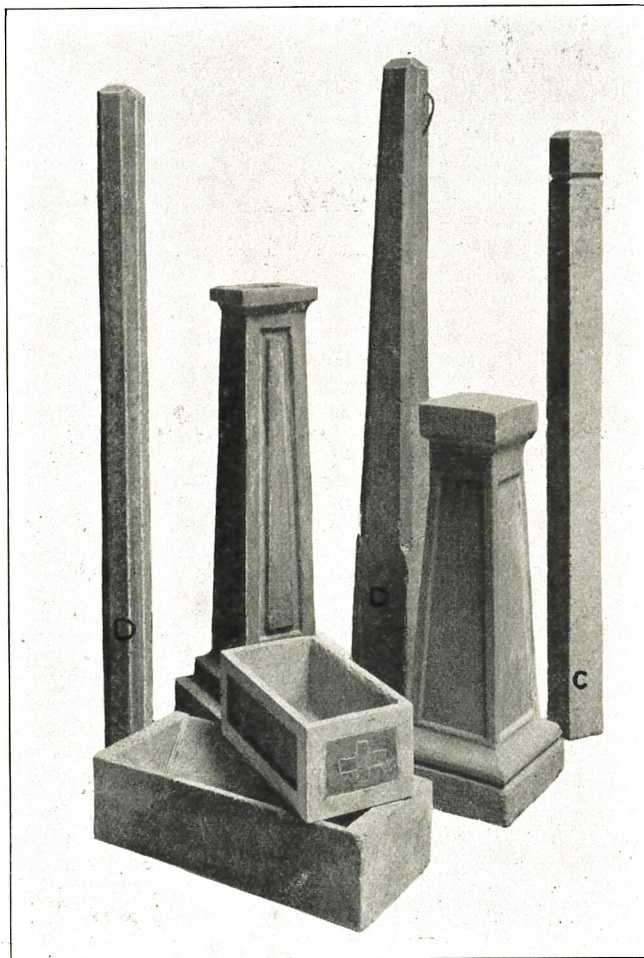
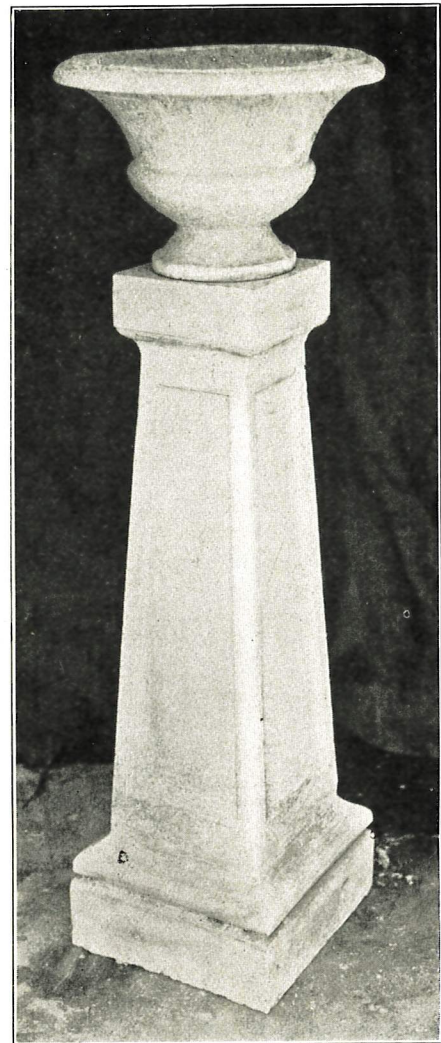
## PLATE II. THE SECOND MAJOR DIVISION IN INDUSTRIAL-ARTS DESIGN.



A Group of Objects Showing the Interest Added to a Problem by the Introduction of Structural Contour Enrichment.



Black Outline Shows Vertical Primary Mass of Fig. A.—White Outlines Indicate the Structure.



"C" Shows Plain Post, Enriched at "D."





PLATE III. THE THIRD MAJOR DIVISION IN INDUSTRIAL-ARTS DESIGN.



A Group of Objects Showing the Interest Added to the Structure by the Introduction of Surface Enrichment.



Surface Enrichment (Raffia).



Surface Enrichment Applied.



## PLATE IV. ANALYSIS OF THE PRIMARY MASS.

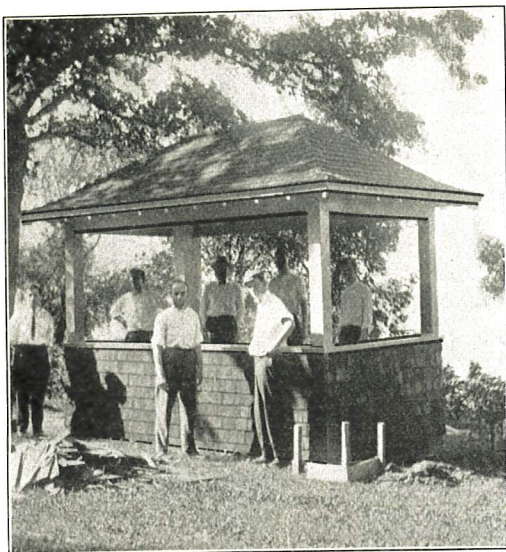


Fig. 1. A Horizontal Primary Mass.

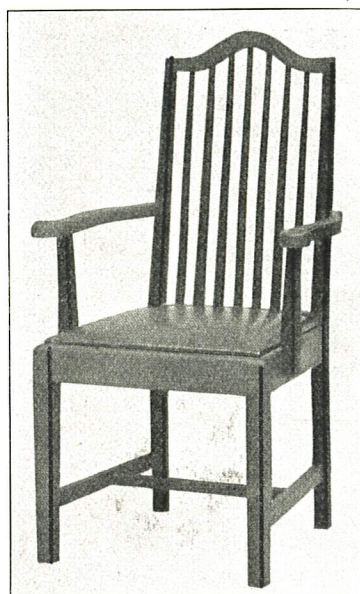


Fig. 2. A Vertical Primary Mass.



Fig. 3. A Vertical Primary Mass.

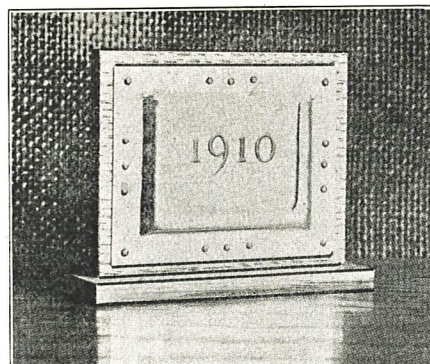


Fig. 4. A Horizontal Primary Mass.

The Main Structural Lines Determine the Character of the Primary Mass. These Lines are Indicated by Dark Bands or Dimension Lines in the Illustrations. Three Divisions or Classes of Material Have Been Emphasized.

against the sky. Nearer approach discloses moldings, cornices and doorways; while careful analytical study shows the technical facts of construction. The architect, in his original planning, thinks in terms of masses, widths and heights, disregarding at first the details and color. As architecture represents some of the world's best examples of composition and design, industrial design should be first based upon similar architectural principles.

It is then necessary to think of our problem as a single mass or solid, bounded by enclosing dimensions of width, height and thickness. Details like a mirror, handles, brackets or knobs may project outside of this mass, but for the time being, they may be disregarded. Figure B, Plate II, shows this manner of thinking and will enable the problem to be viewed as a big, simple mass so that the entire object, unobstructed by small details, may be seen.



## PLATE V. PROPORTIONATE RATIOS—PROCESS OF DESIGNING.

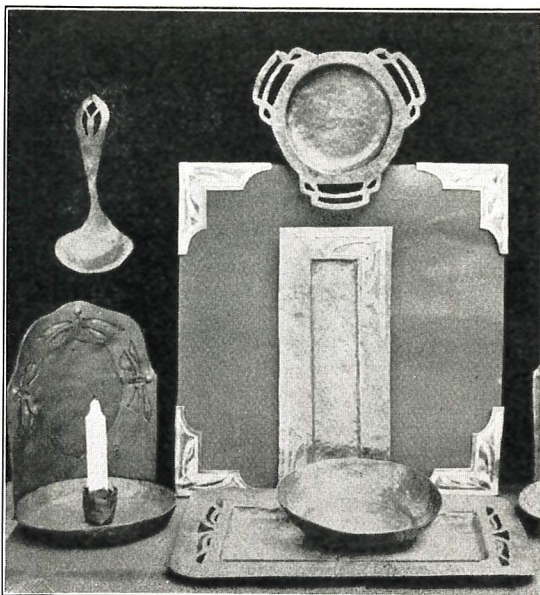


Fig. 5.

Example of Unsatisfactory Proportionate Ratios,  $1:1/16-1:1/3$  and  $1:2$  Have Been Used as the Basis of the Primary Mass.



Fig. 6.

Example of Satisfactory Proportion,  $1:3 \frac{1}{4}-1:3$  and  $3:5$  Show Definite Thinking in the Terms of Design.

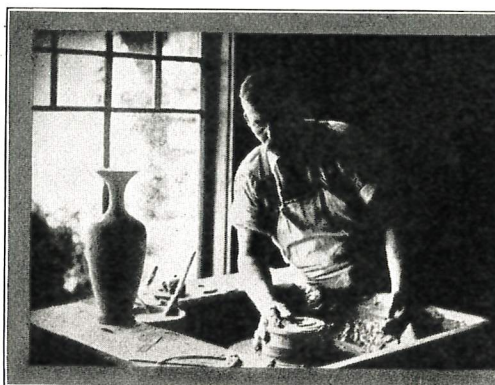


Fig. 7.

Definite Thought in Design Requires a Knowledge of the Laws of Design; A Knowledge of the Technical Limitations of Tools and Materials and the Application of These Facts to a Concrete Model or Working Drawing of the Project.

This is the method of *thinking* about the problem which should precede the drawing. To further describe this mass, which will now be called the single or primary mass, it will be necessary to think of the intended service of the project. A rather hazy idea of making a vase or a stool to be put to no particular use, may have been the original motive. Now the exact service should be defined as it will have a marked effect upon the shape of this primary mass.

#### Horizontal and Vertical Primary Masses.

A primary mass must be either vertical or horizontal according to the intended service, unless prohibited by technical requirements. Service is an important

factor inasmuch as it limits the intended use of the mass. A mass is horizontal when the main dimension is a horizontal line or plane. When this mass is narrowed to the point where the main vertical line or plane exceeds the horizontal, it becomes a vertical mass. As an example, a Davenport is generally a horizontal mass intended to hold a number of people. When the mass is narrowed to the point where the vertical dimension exceeds the horizontal, it becomes a chair for one person. A low bowl may be intended for pansies, but as soon as the service changes and we design it for goldenrod, it becomes a vertical mass. The fable of the fox who, upon being invited to dine with the stork, found the tall vases



unfitted for his use illustrates the change of mass with the change of service.

Figures 1 and 4, Plate IV, are examples of horizontal masses with the dark lines indicating the dominance of the horizontal lines and planes. The shelter house contains a long bench, making necessary the long horizontal lines of the building. The calendar holder has to be a horizontal mass because of the restrictions imposed by the shape of the calendar pad.

Figures 2 and 3 are vertical masses. The vase is intended for tall flowers, while the chair, as has already been mentioned, must meet the needs of a single person. Utility and service then have been found to give the primary mass a given direction or dominance.

#### Drawing the Primary Mass.

The designer now represents this mass by drawing a rectangle similar to the block outline of Figure B, Plate II. It is now necessary to see if the foundation stones of this rectangle have been laid correctly, in other words, to test the proportions of the primary vertical or horizontal mass.

#### Proportions of the Primary Mass.

*The primary mass should have the ratio of one to three, three to four, three to five, five to eight, seven to ten, or some similar proportion difficult for the eye to readily detect and analyze.* Proportions are generally expressed in terms of ratios. A surface of five by eight inches would give a ratio of five to eight; ten by sixteen feet would be reducible to the same thing. Certain ratios are monotonous and offend the eye by their lack of variety. Ratios of one to one; one to one-and-one-half are of this class and should be avoided. If these ratios could speak they would resemble people talking in a low monotonous tone of voice.

Other ratios are weak and indeterminate showing a lack of clear thinking. They are again like people with no definite or clean-cut ideas upon anything. Examples in this class show ratios of two to two and one-eighth, or three to three and one-fourth, neither positively and frankly square nor frankly rectangular, hiding around the corner and waiting to be anything. Figure 5, Plate V, is an example of unsatisfactory proportionate ratio of the primary mass. The blotting tablet is nearly square, while the candle-stick and scone having an apparently vertical mass by its design, lack the snap of definite thinking that gives a definite vertical dimension.

Disregarding the improvement in technic, Figure 6 shows problems designed with a definite knowledge of proportion. The metal objects are refined in their dimensions, and pleasing to the eye. Tests have been made with the idea of determining what the eye considers perfectly natural and agreeable proportion. This has been found to be of the ratio of two to three. Consequently, it is clear why Figure 6 is more pleasing than Figure 5.

It may be felt that too much space is being given here to this subject of proportion. It should be remembered, however, that the industrial arts are intimately associated with daily life and that unless proportions are pleasing to our esthetic sense, many articles of common use shortly become intolerable.

This preliminary portion of the designer's task has been given to thinking out the problem and drawing one rectangle. There is a tendency to start the design by pushing the pencil over the paper with a forlorn hope that a design may be evolved with little mental effort. This should be regarded as illogical and unworthy of the desired end. A rectangle of the most prominent surface of the problem, based upon the desired service of the project, with the best proportions which our design, our knowledge and the limitations of construction will permit, should be the final result of the first study. From now on thru the succeeding steps, the details of the problem will become more and more clear, with the technical limitations of the tools and materials governing the designer's ideas and controlling and shaping the work, until all of these factors become crystallized in the form of a working drawing or model. This is a strictly professional practice as illustrated in Figure 7, which shows the skilled Rookwood potter throwing his ware with a vase form, the definite embodiment of correct thinking, in terms of the material constantly before him.

IT is a rule of largest application, true in a plant, true in a loaf of bread, that in the construction of any fabric or organism any real increase of fitness to its end is an increase of beauty.

R. W. Emerson.

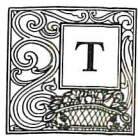




The Story of the Christmas Tree—Paper Cutting by Child in Primary Grade.

## CULTIVATE THE IMAGINATION

Annie Smith, State Normal School, Edmond, Okla.



To cultivate the imagination of children ought to be the aim of every teacher and every director of graphic expression. In every formal course of public school instruction, acting on a wide range of aptitude the doing of things and the stimulation of the child to activity, then to self activity are foremost concerns. Mental images of things suggested to the child are imaginary percepts, which are to the child inadequate until he makes them his own, by turning mental images into terms of his own activity. This new activity of the mind—that of the imagination leads the child to new experiences of wider value to him.

Imagination as a factor in the processes of child education has such manifold application and such positive attraction for youth, that to give expression to mental images, is easily the first appeal that can be made to children under training. The child lives in a world of his own which is filled with wonder and mystery, and with new creations for him to discover, first, thru suggested mental images. Then thru the recording of his imaginary ideals, he is compelled to activity. The child should be encouraged in his everyday life to exercise this faculty of the mind called imagination.

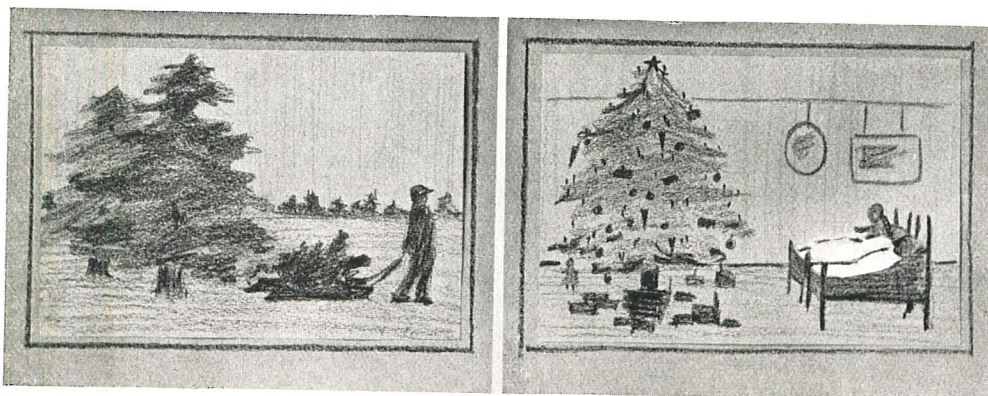
All instruction in art, is the creating of an atmosphere in which the pupil breathes, moves and performs each detail of his life's work. With the child, art consists in doing simple acts that stimulate effort—the accepted notions of taste, beauty and propriety. The

doer is trained, not to become an artist, but is taught to think and to give expression by the arts, of things he knows, about which he thinks and for which he cares. He must therefore be taught to depend on life itself and on creative effort—on the interdependence of doing and thinking—of perceiving and representing—of self activities and self expression, for ideas gained.

This interdependence gives to the child a quickness and soundness of observation, together with a charming appreciation of all things beautiful.

Art work based on imagination, not only teaches the child to create, but to think, and is so closely related to other modes of thought expression in our system of education, that we no longer consider art as a special subject. Thru this inter-relation of the arts with free expression, drawing has gained for itself a special need in the whole education of the whole boy or the whole girl. Thru the arts the child reproducing his mental conceptions, has a feeling of acquaintance with all that is good and beautiful around him. If suggested ideas given to the child are related, they will become instruments by which alert, persistent and fruitful intellectual habits are formed.

All work in the education of a child should be made vital to him. If art is to be correlated with other subjects, the faculty of imagination ought to be developed that the child's power to visualize will also give him the power to recreate. Creativeness is the definite expression given to ideas and to mental images which are perceived by the child thru suggestion, known as imagina-



Story of the Christmas Tree in Colored Crayons.



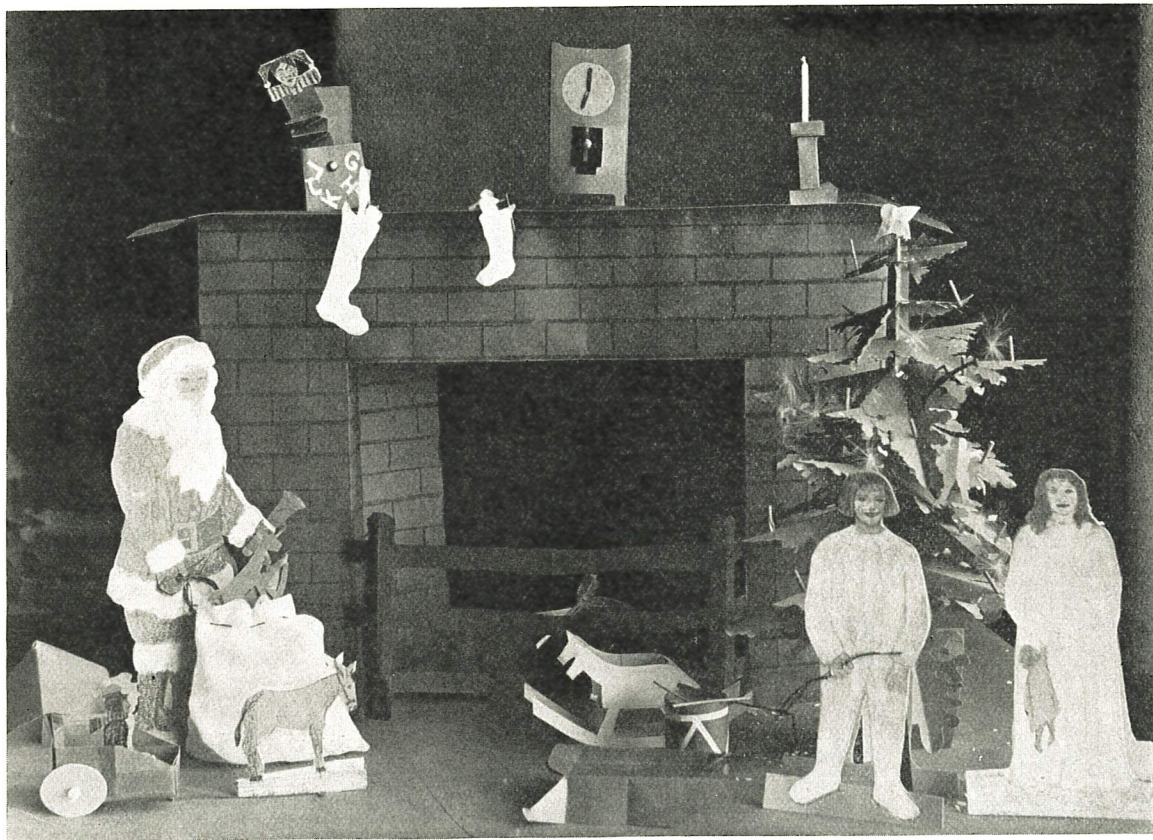
tion. Creativeness is imitative at first, but leads in the end to a better understanding of the hidden ideas, and means progress toward clearer perception.

In the story hour the child gains thru the written words of another, a mental image. The meaning conveyed to the child is not clearly understood by him until under correct guidance of suggestion and illumination, an intelligent thought expression becomes more lasting to him if with scissors or with crayon he is given the freedom to create. These creations which grow upon the paper under the application of the crayon or those which come out of the paper with the aid of scissors, are but combinations of ideas, which the child perceived, placed in new environments. The setting for his pic-

head and the ground all covered with snow, of large trees and small trees, their pointed tops held close to the sky, their branches upraised with white capped fingers stretching out.

Color crayons and white chalk will help the child to picture the trees which he has learned to know and to appreciate. Every tree has a lesson in it for the child. (See illustrations.)

Our story tells us that the tiny tree was chosen from among its brothers and carried away by loving hands. The tree at last awakened on Christmas morn, its arms not reaching out to the sky, its fingers not white capped, but holding instead much tinsel and gold, extending graciously its arms to many little children,



A CHRISTMAS GROUP.

tured ideas, is presented concretely to him, by the related story.

Christmas time with its story telling, and its gift making and the expression of good-will and happiness offers manifold opportunities for the development of creative imagination.

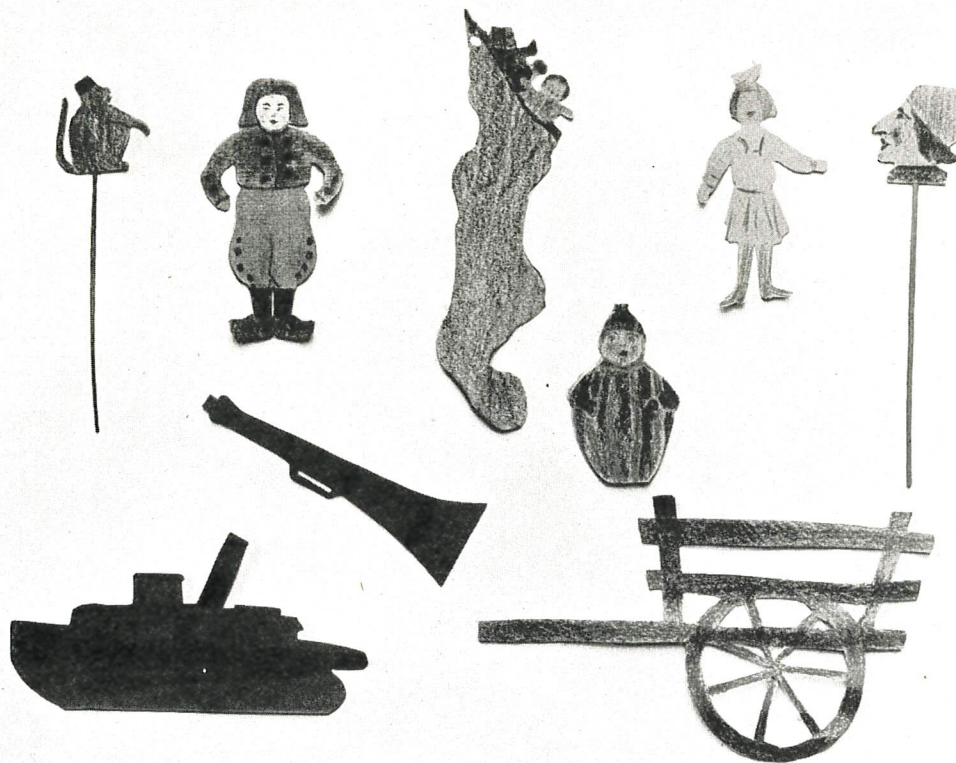
As an example, the story to be visualized by the child, may be that of the Christmas tree, which grew near its brothers in a great forest. The tree was so small, and its brothers so tall, that it was very sad, fearing that its glories would never be noticed at the glad Christmas time. The story so far, will bring to the mind of each child an imaginary picture of a fir tree, very small, standing near its brothers. An art instructor would call such a picture a landscape and would term it a lesson in illustration. To the child it is a story picture of a great out-of-doors, of the blue sky over-

white robed, hidden amidst pillows and white coverlets. The tree was standing in all its glory in the center of the children's ward of the big City Hospital.

How often our lessons can be turned into real life lessons thru expressed imagination! How many are the pictures brought to the minds of children by such a story as that of the Christmas tree! Here are a few of the mind pictures worth visualizing: "A visit to the Woods," "How I helped to bring in the Christmas tree," "How the tree looked all dressed up for a sight on the hospital floor," "My visit to the hospital," "What I can do to help the little sick-a-bed children." (See illustrations.)

Nature study can better be understood thru the cultivation of imagination by the arts. Clytie, the golden sunflower, hyacinthus and narcissus and all such delightful nature stories, will, if recreated by the child,



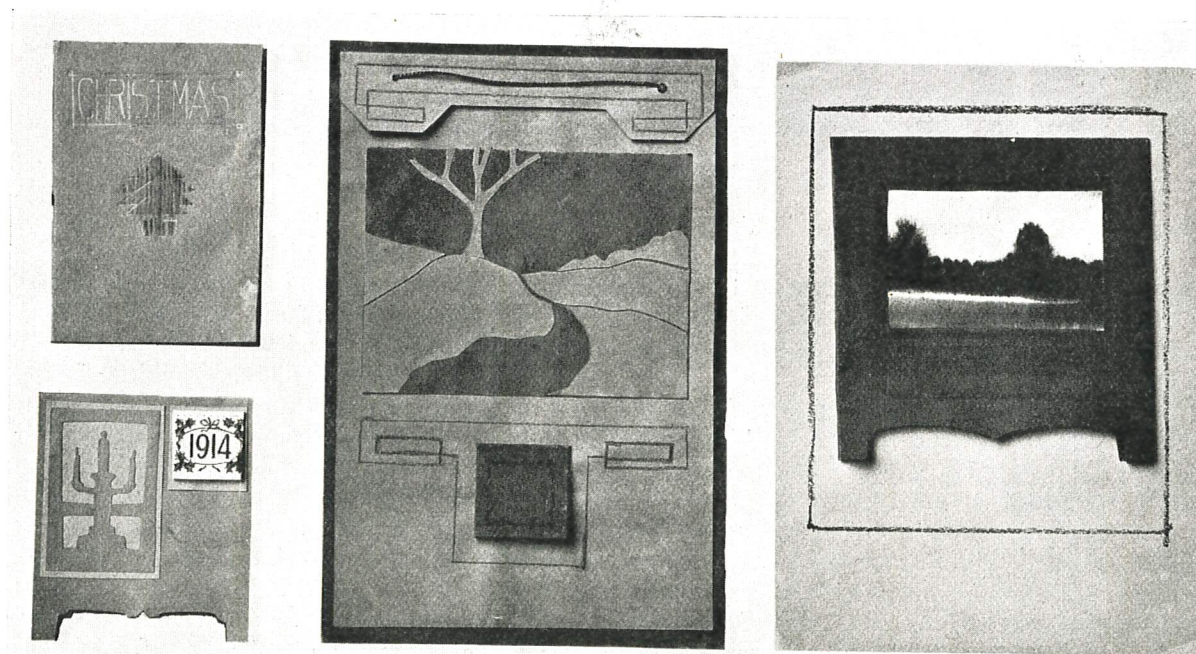


CHRISTMAS PROBLEMS IN PAPER CUTTING AND COLORING.

live long and give birth to ideas never before thought of. What is more pleasing to the child at Christmas time than Van Dyke's beautifully told story of the First Christmas Tree?

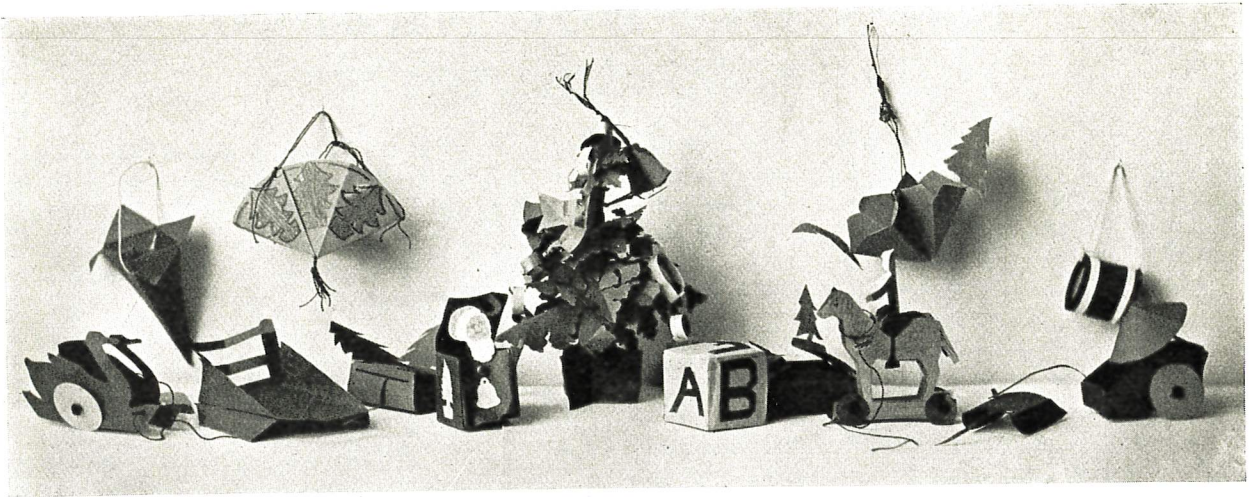
The music hour gives rise to new imaginations that can be reproduced by the child, while history is better

understood if thru constructive imagination, the development of the settling of America and the development of the home—if the subject is made vivid by the making of wigwams, early log cabins and the later home of today, or such problems as tell of the mode of travel, as the canoe, the ox cart, the schooner and other problems.



CHRISTMAS PROBLEMS IN PAPER CUTTING, MOUNTING AND COLORING.





CHRISTMAS PROBLEMS IN CONSTRUCTION.

The child is learning thru constructive imagination in transition the value of attention, direction, building and creating.

The Christmas motif can be developed in constructive imagination by the representation of the Christmas tree, tree decorations and paper toys. (See illustrations.)

The free hand drawing and cutting of forms representative of the mental images of the child, can be led with care to the design element based on enlarged or cultivated imagination.

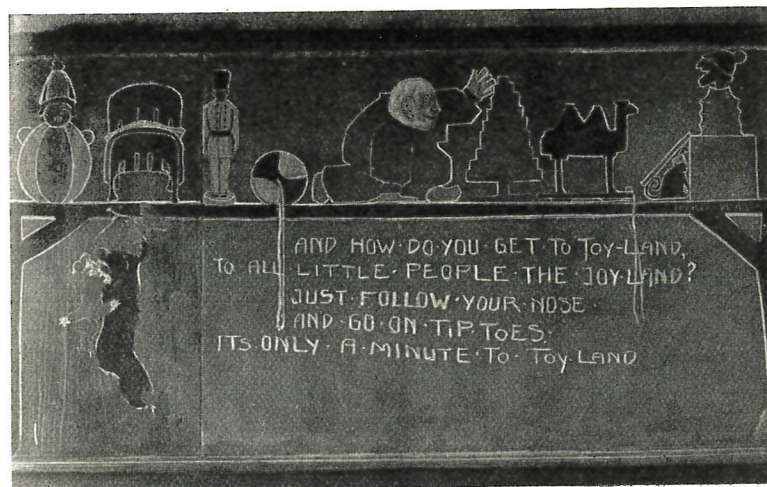
Design calls for a more orderly and a more clearly defined expression of an idea, with a purpose. A design, not only tells a picture story, but thru application becomes a decorative idea. With little children, a design is truly creative; in intermediate grades, imitative and creative, but with the spontaneity of imagination lessened. In grammar grades, design becomes a conscious creative effort. The boy or girl has to first visualize the motif. With the visualized or expressed motif and the help of his imagination the pupil can create a design. With little children design is the telling of a story in

an orderly way; with older students the story motif is not emphasized and often eliminated.

The purpose of design is that of decoration and can be applied to school booklets and to school folders, to problems in hand craft and to blackboard decoration. (See illustrations.)

Instructors of little folk should cultivate their own imagination that they may see more clearly pictures in their own minds before attempting to lead the child to a mental picture of his own. To do this, a teacher must train his mind to think, to do, to see and to act as the mind of a child does. In the story telling hour the teacher ought to imagine for herself, a vivid mental picture for the story before relating it to the children. Every teacher should be prepared to strengthen these mental conceptions of the child and turn each conception into a power producing idea.

Teachers who cultivate their own imagination learn thru experience, for experience has a way of boiling over and giving us an opportunity to correct our methods. May we enlarge our imagination, that we may create from unknown wonders new pleasures and benefits for others!



A BLACKBOARD DECORATION.



# RODS AND ROD MAKING

C. A. Zuppann, Director of Manual Training, Central High School, Grand Rapids, Mich.



HIS article deals primarily with the construction of rods and their use. In order to get an adequate conception of the rod it becomes necessary first to describe the steps leading up to its making.

There is a marked difference between the drawings used in cabinet making and those used in the metal industries or in architectural work. In the usual machine-shop drawing we have one sheet showing the assembled views and other sheets showing views of each of the details or parts. In furniture work the detail drawing is an assembled drawing. This drawing is made full size no matter what the dimensions of the article may be.

Three views are usually given; which are, half of a front elevation, a sectional side view and a half plan. Since the paper used is only a yard wide, the side view and the front view must be superimposed in order to place them in the limited space. In other words, the front view is placed as near the left edge of the paper and the side view as near the right edge of the paper as is convenient. Since the sum of the front and side views is usually more than 36 inches, parts of these views must overlap. In order to save paper and make the drawing more compact the plan is drawn over or superimposed upon the front view. If black lines only were used on these three views a great deal of confusion would probably result. To avoid this all lines in the front view are left black, those in the side view are made blue and those in the plan are retraced in red. In showing a section thru an article cross-hatching is usually used only to indicate end grain. Unlike the machine drawing, the furniture detailed drawing is not inked in, tho sometimes tracings are made on cloth in chair making factories and blue prints are made from these tracings.

No dimension lines are made on the drawing and it is very seldom that any measurements whatever, except a note stating sizes of glass to be used, are written.

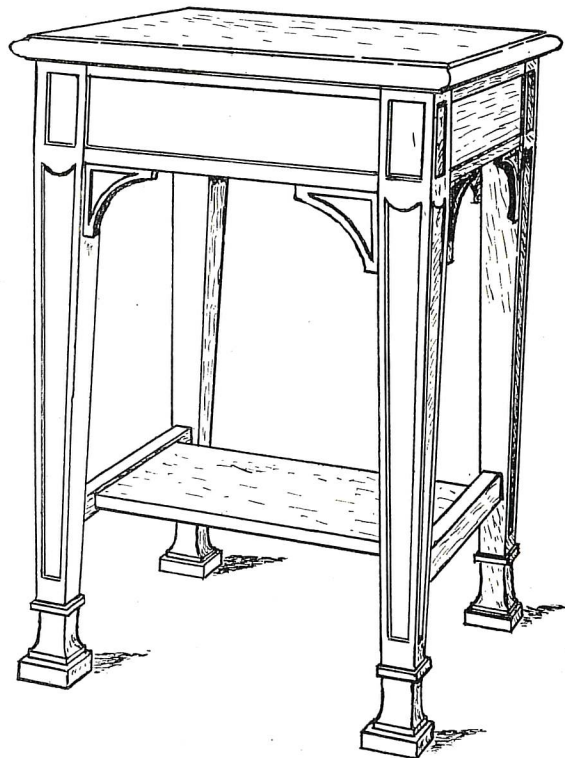
Before making the detail a free-hand perspective is usually drawn and following this sometimes a scale drawing is made in order to better judge proportions to be used. If the designs are to be sold, the scale is usually made from a perspective drawn in ink and often colored and shaded to bring out the parts. To facilitate the making of perspectives a "perspective" board is used. The usual angles at which these perspectives are drawn are sixty-seven and a half degrees ( $67\frac{1}{2}^\circ$ ) and twenty-two and a half degrees ( $22\frac{1}{2}^\circ$ ) with the picture plane. The distance to the station point is taken at ten feet and the height at five feet. The scale used is one and one-half inches to the foot ( $1\frac{1}{2}"=1'$ ). Since these numbers remain constant for practically all perspectives, a board is made in which the important points are located and a scale plan and elevation drawn permanently.

After the detail drawing is made it is sent to the pattern maker, provided it contains any parts which are to be band sawed or shaped. The pattern maker makes

templates or jigs for laying out and finishing these parts and then forwards the drawing together with all his work to the rod maker. The rod maker uses both detail and patterns with which to draw his rod. At times it is necessary to make several rods of the same article to be used in different parts of the factory. When the rod is finished, the rod maker makes out the stock bill from the rod. The detail is then filed for reference, tho sometimes a photograph is taken and the blue print of this then accompanies the rod. The stock bill and the rod form the real "working drawing" of the furniture maker.

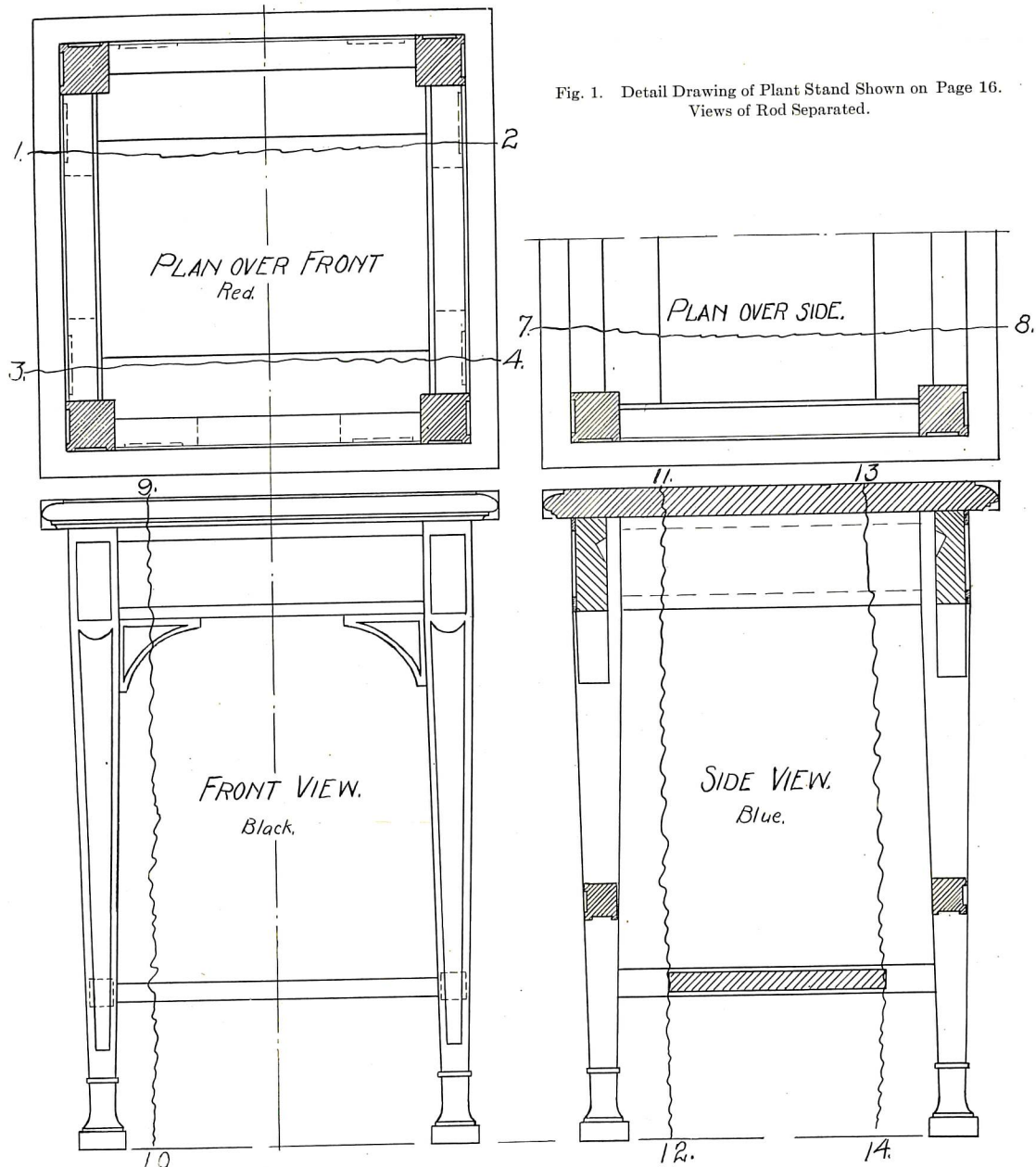
A rod is a board to which the detailed drawing is transferred full size and which is used for measuring and constructing purposes and upon which the length, width, and thickness of all parts used in the construction of a piece of furniture appear full size and true shape and in their proper relation to one another.

It is evident that the drawing on the board must follow an entirely different system from that used in ordinary mechanical drawing. Shop drawing has often been called the "language of the shop." In the same terms we might say that rods are written in a different shop language derived from the first. There are two systems of rods in common use and each has its variations. These systems are the "Detail" which is the most complete and the "Linear" which is practically only an individual measuring stick. In this article the "Detail" system will be described. There are several good reasons for using rods in place of other forms of drawings in



A Plant Stand.  
See Rod on Opposite Page





furniture making. Since it would be impossible to use a scale drawing on curved work and therefore a full size drawing is a necessity, it is apparent that this drawing must cover a considerable amount of paper. Paper is affected to a great degree by the humidity of the atmosphere; therefore, if measurements for a certain lot of rails were taken from the drawing on a dry day and a second lot for the same article were taken on a wet day, the difference in length, owing to the swelling of the paper, would be appreciable. The full size paper drawing is hard to lay out flat for reading purposes in the shop where everything is more or less crowded; likewise it is very liable to injury from rough handling and dirt. The rod overcomes these objections to a great extent. By shellacing the board it is easily kept clean, it can not be torn when laid down for measuring, it always keeps straight, it is easily filed, and by making all true measurements with the length of the grain the effect of varia-

tions in humidity is reduced to a minimum. Indeed, for all practical purposes it is entirely eliminated.

The boards on which rods are drawn are of white-wood or basswood, usually one-fourth inch to one-half inch thick and from five to eight, or ten, feet long and six to twelve inches wide. Both edges are jointed perfectly true and parallel. This board is placed on the detail drawing board and is sometimes held in place by a spring wire coat hook screwed into the detail board. Lines are made with the aid of a combination square having an eighteen inch blade. All lines across grain are knife lines and those with the grain are pencil lines. After selecting a board of suitable size, center lines for two of the views are drawn. The making of the rod from this point can best be explained by the use of the accompanying sketches.

In Figure 1 are given the three usual views shown in an ordinary shop drawing, the "Plan Over Front,"



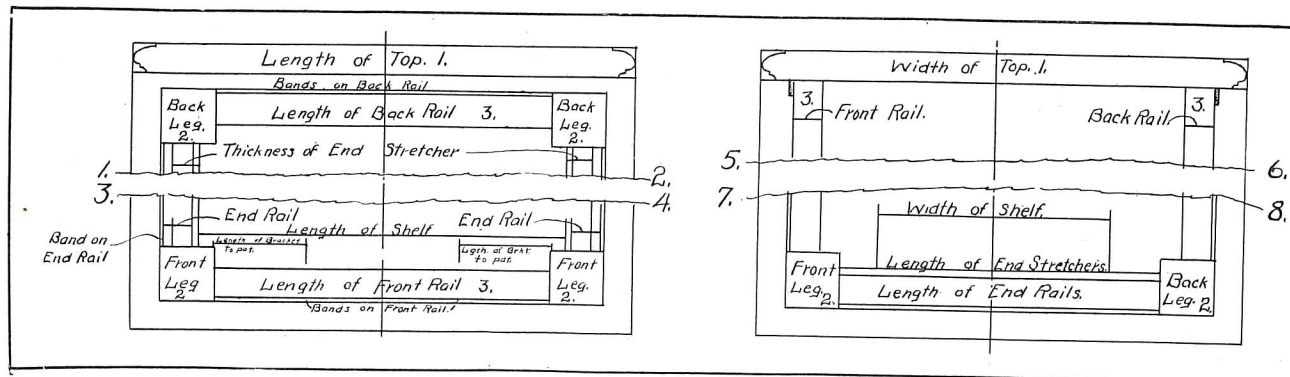


Fig. 2. One Side of Rod Showing "View of Widths" and "View of Depths."

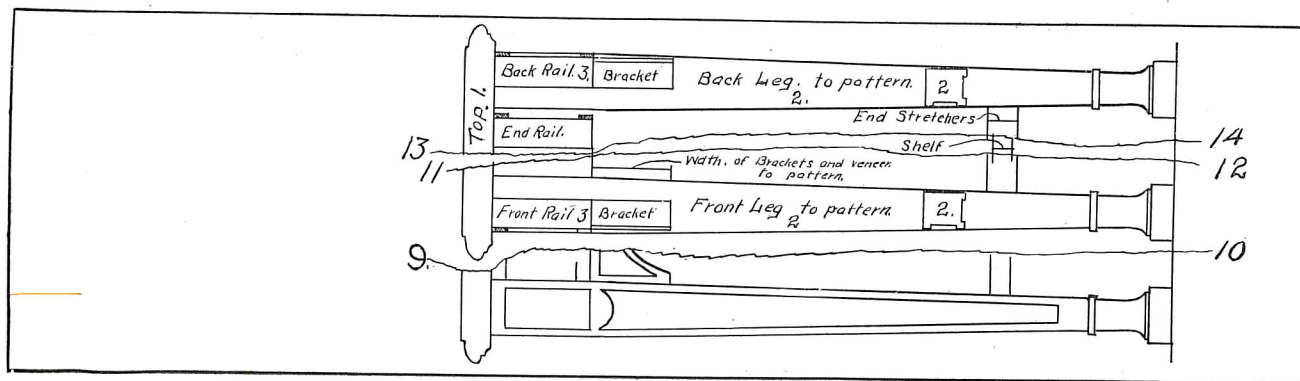


Fig. 3. Other Side of Rod Showing "View of Heights" and Space for Cutting Bill.

the "Front View," and the "Sectional Side View." To these three views has been added a fourth, which is the "Plan Over the Side View," as this will help materially in explanations which are to follow. Also, the whole of the front view and the plan are shown instead of a half of each. These views are separated in order to avoid confusion. In Figure 5 a detail is shown in which the views are given as ordinarily used in the factory.

Suppose that part of the plan of the front contained between the broken lines 1-2 and 3-4 were taken away and also suppose all of the side view below the line 5-6 and that part of the plan over the side above 7-8 were eliminated. The remaining parts of these views would form the basis for the drawing on one side of the rod. By reference to the sketch of the rod shown in Figure 2, the position given these parts will be made clear. A slight addition has been made in that part of the rod representing the "Plan Over the Front." At the top of this view is shown the top of the stand turned edgewise.

The distance between the top and that part representing the back legs is immaterial. Tho no measurements are considered accurate when running across grain, they are nevertheless laid out with great care and are as accurate as ordinarily would be found in a drawing made on paper. Again, suppose that part of the drawing in Figure 1, to the right of Line 9-10 in the front view, were cut away and that part of the side view, between the lines 11-12 and 13-14, were dispensed with. The remaining portions of these views are placed as shown in Figure 3. Any part of these views which cannot be represented entirely owing to a lack of space is represented by a single line properly labeled.

To find the dimensions of any piece in the article it is necessary to refer to each of the three views. For instance, the length of the top is given in the view of widths, the width of the top is given in the view of depths, while the thickness of the top is given in the view of heights. Again, the dimensions for the end

| Order No. ----- |     | CUTTING BILL,    |                  |                 |                  |                 |             | Stock No. -----  |  |
|-----------------|-----|------------------|------------------|-----------------|------------------|-----------------|-------------|------------------|--|
|                 |     | Plant Stand      |                  |                 |                  |                 |             |                  |  |
| Item.           | Amt | Name,            | Size             |                 |                  | Material.       | Remarks,    | Finished width.  |  |
|                 |     |                  | L.               | W.              | Th.              |                 |             |                  |  |
| 1               | 1   | Top              | 13 $\frac{3}{4}$ | 13              | 1 $\frac{3}{16}$ | 1               | Good figure | 12 $\frac{3}{4}$ |  |
| 2               | 4   | Legs             | 18 $\frac{1}{4}$ | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$  | 1 $\frac{3}{8}$ | Good stock  | 1 $\frac{3}{8}$  |  |
| 3               | 2   | Front+Back Rails | 9 $\frac{1}{2}$  | 2 $\frac{3}{4}$ | 3 $\frac{1}{4}$  | 1               | " "         | 2 $\frac{1}{2}$  |  |
| 4               |     |                  |                  |                 |                  |                 |             |                  |  |

Fig. 4. Fac-simile of a Cutting and Stock Bill Accompanying Rod.



stretchers; the thickness is given in the view of widths, the length in the view of depths, and the width in the view of heights.

Difficulty will no doubt be encountered by the beginner in locating these parts on the rod tho the same difficulty would be expected of a beginner in reading a "working drawing." To get more than a very hazy idea of a rod from this article it is advised that the reader select a piece of paper and follow thru each step in the process of making the simple rod shown of the stand in Figures 2 and 3.

Naturally those lines which would ordinarily run across the grain of the rod and therefore would be knife lines, will in this case of necessity be pencil lines. In teaching rod making, owing to the expense connected with drawing on boards, it is customary to use paper and therefore use pencil lines thruout. As each part is drawn in its proper position it should be labeled with its correct name, as "Thickness of end rail" or "Width of top." If it is to be cut to a pattern it must be so stated. The main parts of the rod are outlines in yellow just inside of the pencil and knife lines. To show what is meant by the "main parts" reference may be made to the "view of widths" in Figure 1. In this view the top, the four legs and back and front rails would be so outlined. The outline in the "view of depths" would follow inside of the top and of the legs and the rail between the legs. In Figure 3, the "view of heights," the top and the section of the front, end and back rails, and the section of the leg would be outlined in yellow. It will

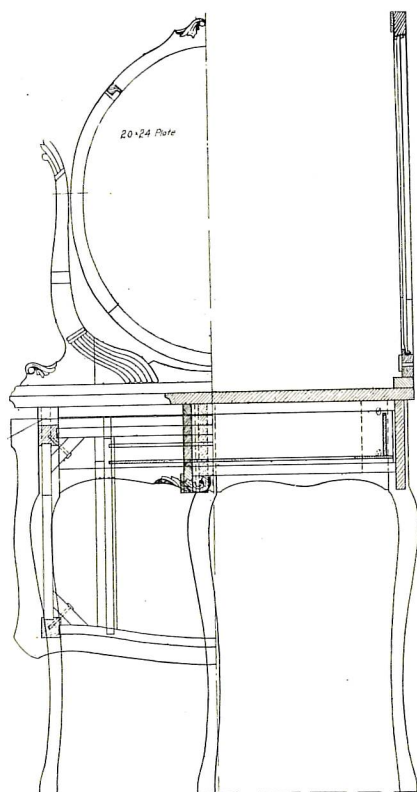


Fig. 5. Rod (greatly reduced) of a Dressing Table.

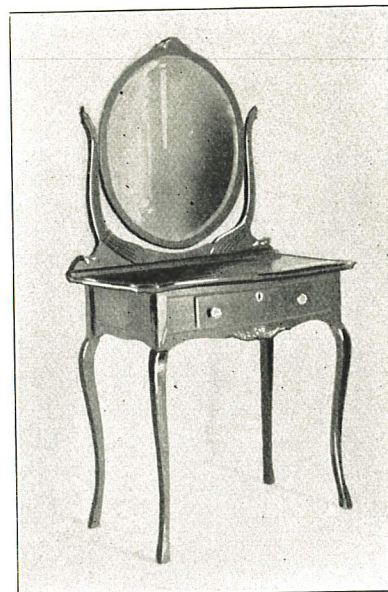


Fig. 6. A Dressing Table.

be seen at a glance how much easier this outlining makes the reading of the rod.

At the vacant space to the left of the view of heights, in Figure 3, a free hand sketch is usually drawn. A stock bill is next made of all pieces required for the construction of the object. This bill follows somewhat the general form shown in Figure 4. All measurements are made direct from the rod and placed upon this bill. The item numbers from the stock bill are marked with red pencil upon the rod wherever a dimension of that item is given.

When all drawing and lettering is finished, a hole is bored at one end of the rod for convenience in hanging, and the rod is given several coats of white shellac.

In order to get an idea of the complexity of a superimposed drawing and the difficulties encountered in its reading when the views are not colored the reader may refer to Figure 5. This is taken from the full size detail of the dressing table shown in the photograph.

There are many educational advantages in teaching rod making in connection with cabinet making. Among answers given by students in the writer's class at Chicago University Summer School as to the advantages connected with the teaching of rod making the following will give some idea of the students' opinion:

"It is a trade within itself."

"It is a new language to the boy and has the same value as translating from one language to another in academic work."

"It brings out obscure points of construction in the translating and the boy must thoroly understand his project to make a rod."

"The more ways a boy can express an idea the more sure we are that he understands his project. Rod making is one of these methods of expression."

"Training in methods of construction is afforded by making several rods when lack of time makes building impossible."



# Organization of Administrative Material

Prof. F. D. Crawshaw, University of Wisconsin

(Fifth Article)

## The Care of Supplies and Equipment.

**I**T goes without saying that every instructor should be held responsible for his supplies and equipment, yet upon this point in administrative responsibility, not a few instructors of the manual and industrial arts are grossly deficient. Many a manual-arts shop has the appearance of being "run down at the heel" because supplies are unkept and equipment is out of repair.

This need not be so. There should be a place for every item of supply and every tool. Everything should be kept in its place. Every item of equipment should be kept in repair.

Cases, cupboards, racks, etc., for supplies and tools may be made in most cases by advanced classes. The budget, made out by the supervisor, (to be discussed in a later article) provides for stock and small supplies for each department. As soon as such material is received it should be checked and put in its place. At a convenient point near each item of supply, there should be kept a sheet or card upon which the stock is recorded—both the initial stock and that which is removed from time to time. The date of removal, the amount of stock removed, and the person responsible for the removal should be recorded upon this blank.

As the stock removed by each pupil is recorded upon his individual stock or job card, similar items upon the general and individual cards should check. Thus it should be possible for the instructor at any time to determine the accuracy of his general stock sheets for any and all materials by merely comparing items on

these sheets with similar ones under corresponding dates found upon the stock and job cards of individuals. Any discrepancy can then be charged against a particular pupil whose stock in the form of unfinished or finished work is in evidence.

To be sure items of supplies may be mislaid by pupils or willfully destroyed by them, but the plan proposed provides a reasonably automatic and active inventory of materials. The plan may seem complicated at first, but in actual practice it is comparatively simple. Individual pupils soon become interested in the business-like methods employed and with few exceptions gladly become responsible for keeping them both on general and individual blanks. Where a stock keeper is not possible the plan proposed serves as an item in shop management which means order and precision for both pupils and instructor. Figure 20 shows the form of a general stock sheet, in this case to be used for recording lumber at the lumber racks. Note the three important elements: 1. Record for original stock. 2. Record for stock removed. 3. Record of balance. It should be understood that each particular class of stock is cared for by a separate sheet. One would be conveniently placed, therefore, at each compartment of the lumber racks containing a particular kind of lumber. Likewise, each drawer in the hardware cabinet, Figure 21, would have a stock sheet or card.

The guarding and repairing of equipment also is work for which pupils may be made largely responsible. Besides it is a legitimate work for classes to do. Should not every mechanic take care of the tools which he uses? As teachers of manual and industrial arts we are often criticised by mechanics for the poor upkeep of our equipments. We might also be criticised for not teaching boys and girls how to keep their tools in order. Much of the work in the care and upkeep of tools and

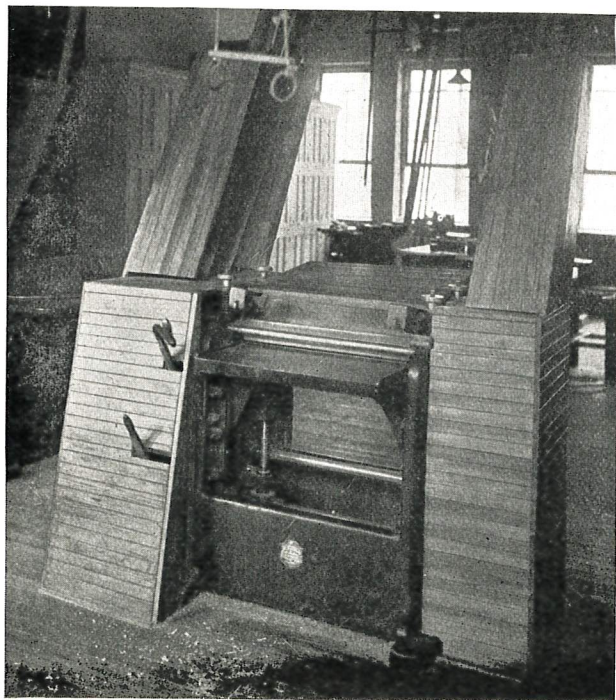


Fig. 22. Planer in a Manual Training Shop Guarded by Students.

| WISCONSIN HIGH SCHOOL           |  |   |                      |
|---------------------------------|--|---|----------------------|
| UNIVERSITY OF WISCONSIN,        |  |   |                      |
| MADISON, WIS.                   |  |   |                      |
| STOCK SHEET <u>Yellow Paper</u> |  |   |                      |
| Initial Stock.                  | <u>Sept. 1, 1914</u> <u>229.5 board feet</u> |   |                      |
| Items:                          | (1)  | <u>3 Bds. - 1 x 10, 16 - 38.4 bd. ft.</u>   |                      |
|                                 | (2)  | <u>6 " - 1 1/2 x 12, 16 - 144. bd. ft.</u>  |                      |
|                                 | (3)  | <u>1 Bd. - 4 x 4, 10 - 13 1/2 bd. ft.</u>   |                      |
|                                 | (4)  | <u>6 Bds. - 5/8 x 9, 12 - 33.78 bd. ft.</u> |                      |
|                                 | (5)  | <u>Total - 229.5 bd. ft.</u>                |                      |
|                                 | (6)  |   |                      |
|                                 | (7)  |   |                      |
|                                 | (8)  |   |                      |
| REMOVED                         |  |   |                      |
| Date                            | Name   | Amount                                      | Balance              |
| <u>9/7-14</u>                   | <u>John Smith</u>                            | <u>36 bd. ft. of (2)</u>                    | <u>193.5 bd. ft.</u> |
| <u>9/15-14</u>                  | <u>Frank Jones</u>                           | <u>23 bd. ft. of (4)</u>                    | <u>170.5 "</u>       |
|                                 |  |   |                      |
|                                 |  |   |                      |
|                                 |  |   |                      |

Fig. 20. A Stock Sheet.



machines falls legitimately within the scope of our courses of study. The handling of tools, the resurfacing of bench tops and the overhauling of benches and tables may be made valuable classwork. It is customary in some manual-arts departments to have all bench tops planed, scraped and shellaced by members of shop classes as their first piece of work for the year. As an illustration of this general type of work, Figure 22 is given

item in the administration of classwork. A student monitor system is convenient and efficient in lower grade work. Incidentally, it is often wise to choose the monitors from among the most vivacious, or shall we say, obstreperous youths. In ordinary shopwork the system of caring for supplies spoken of under the heading "Care of Supplies and Equipment" is efficient. However, at the beginning of a class period it is often



Fig. 21. Cabinet for Hardware.  
Each handle holds a label indicating the material contained in the drawer.

and shows a planer guarded by students of high-school grade.

#### The Cutting and Handling of Stock.

In the preparation and distribution of material for class use, too, the easy operation of a class or classes depends in no small degree upon a plan, carried out, which systematizes all necessary operations and, so far as possible, drafts individual pupils into helpful service.

It often happens in large departments that considerable stock must be prepared for certain fixed projects. This is often the case in lower grade construction work. Where the size of the department will warrant it some individual should be employed to do this work and see that material is delivered ready for use at a specified time. In small or individual departments the instructor must often be responsible for this. He may have some if not all of it done by responsible pupils who would benefit by the practice involved. In any case the instructor must look ahead and plan his work so that everything will be ready at the appointed time.

It seems almost out of place to suggest here a method of distributing stock; however, it is no small

necessary to distribute material upon which pupils will work during the period. This may be centrally located so that each pupil in passing may take the required number of pieces. In other cases a monitor attends to the distribution.

In grade and high school centers in large city school systems pains must be taken both to distribute and collect stock systematically. Because of the large number of pupils accommodated in such centers it is impossible to provide for each an individual locker. Class trays or boxes are sometimes used into which all the work of a particular class is placed at the close of a class period. The tray or box is then put in its place on open shelves by monitors. At the beginning of periods the appointed monitors collect the trays and distribute their contents to individual benches or desks.

When this plan of caring for unfinished work is used each pupil must have a number which must be placed upon each piece of stock belonging to him. A good system of thus designating stock is as follows: Give each pupil in the first class reporting for a week a number in the 100 group, each one in the second class



a number in the 200 group, etc. The particular number in each group associates a pupil with a particular drawing table or bench, thus: number 101 is given to the pupil assigned to drawing table or bench number in the first class; number 102, to the pupil who uses drawing table or bench number 2 in the first class, etc. Number 201 is given to the pupil who uses drawing table or bench number 1 in the second class, and number 202, to the pupil on the second piece of equipment in the same class.

| <b>FRANKLIN SCHOOL</b><br>DEPARTMENT OF MANUAL ARTS<br><u>Individual Drawing Equipment Loaned to Student</u>  |   |
|---|---|
| 1 Triangular Boxwood Scale.<br>1 Pencil File.<br>1 24-inch Pearwood T-Square.<br>1 6-inch 45° Pearwood Triangle.<br>1 8-inch 60-30° Pearwood Triangle.<br>1 Irregular Pearwood Curve.   | 1 Set of Drawing Instruments, Including:<br>1 Ruling Pen.<br>1 Compass with Pen, Pencil Point and Lengthening Bar.<br>1 Divider.<br>1 Pencil Point Box. |
| <small>Instructions to Pupil.—Be sure that all of the items listed above are in your locker at the beginning of the period. Check any that are missing, sign and date below and hand sheet immediately to instructor.</small> |   |
| Name _____  | Date _____  |

Fig. 23.

The question of caring for finished projects needs attention from the standpoint of administration as well as that of social importance. It is quite generally agreed that projects should go into the home as soon as they are completed if they are to secure the best and greatest reaction to the impulse for ownership. It may seem necessary to have some of them almost immediately returned to provide for exhibits. If so, they must be cared for at the school.

Not an unimportant part of the equipment in a manual and industrial arts department is the museum. Each finished project must be labeled, placed in a position to show it in the proper sequence and so protected as to preserve it from injury or loss. A museum room should contain enough finished work to show the development in each and all courses and to exhibit the average technique of classes. It should contain also such commercial exhibits, demonstration exhibits, etc., as will

be generally enlightening to pupils in the development of their work.

In the care of stock and equipment and in the maintenance of a museum of both school and community value, as in other matters of class administration, the motto: "Have a Plan" is worth heeding. Besides, "Let George Do the Work" may be applied, for members of classes are always willing to do, if the doing gives them some responsibility. In this they are not different than older people.

### The Inventory.

One further item in administrative organization needs just a word of emphasis. The plan proposed for caring and accounting for stock really provides for a daily kept inventory. A similar plan can easily be carried out to give a daily account of equipment. Losses or breakages can be recorded by individuals in either the open or closed equipment, spoken of in a former article, by having at each desk or bench a printed list of tools. When any of these are found missing or broken one of these lists (a sample of which for mechanical drawing is shown in Figure 24) properly checked and handed to the instructor will give him necessary information to make an entry upon his inventory sheet.

Such an inventory should give at the beginning of a year the exact information as to the equipment available, both old and new, and besides it should provide for the necessary entries of additions, losses and breakages and for the final result at the end of the year. The sheet can be used both for an active inventory during the year and for the annual inventory report.

A legitimate part of an inventory is the annual report of an instructor to his supervisor or to the superintendent of schools. In this he should give the accomplishments of the year and a copy of the courses of study or plans as he carried them out. These are invaluable in case of a change of instructor for the coming year. It is needless to say that too often a department is sadly handicapped by the absence of such plans.

It is hardly to be expected that every instructor of the manual and industrial arts will agree to the efficacy of all organization suggestions which have been made in

| <b>I N V E N T O R Y</b><br>Franklin School, Madison, Wis.<br>DEPARTMENT OF MANUAL ARTS |                      |                    |                    |                    |                      |
|---|----------------------|--------------------|--------------------|--------------------|----------------------|
| Shop _____  |                      |                    | Instructor _____   |                    |                      |
| Date _____ 19 _____   |                      |                    | Sheet Number _____ |                    |                      |
| No. Needed  | Article              | No. at last Report | No. added          | No. at this Report | Remarks              |
| 24  | Stanley No. 5 Planes | 23                 | 2                  | 22                 | one lost, two broken |
|   |                      |                    |                    |                    |                      |
|   |                      |                    |                    |                    |                      |
|   |                      |                    |                    |                    |                      |

Fig. 24. Inventory Form.



this article. Many others might be given, but it is believed that those selected will be helpful if they or some modification of them are put into practice. Their use

will soon prove that administrative organization when not carried to the point of making organization a fetich will materially assist in teaching efficiency.

## ART SMITHING

Thomas Googerty, Pontiac, Ill.

(Sixth Article)

### Exercise No. 11.



VERY interesting and useful article to make is a toasting fork. The stock used can be spring steel. A disadvantage in using this steel is that it is too hard to work out a design on the handle. If one can weld quite well, the fork should have the handle made of soft steel and the balance of carbon steel. In doing this, the weld is the first thing to do while the stock is straight and full size. If one without much welding experience is to make the fork, it should be

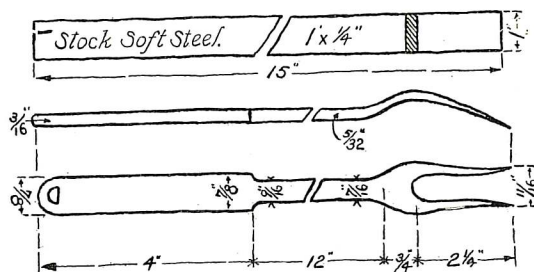


Fig. 60. Stock for Toasting Fork.

made of soft steel, and when finished the prongs should be case hardened. In making a fork of this kind, a piece of soft steel as shown in the drawing in Figure 60 is used. On one end, the stock is enlarged a little, by upsetting for a distance of five or six inches, to be used for the handle. The other end of the bar is then heated and a hole punched  $1\frac{3}{4}$  inches from the end. The piece should then look somewhat like the drawing shown at A, Figure 61. In drawing out, the shoulder is hammered as shown at B, Figure 61. The shank (the part between the handle and the shoulder) is next drawn out. It should be a scant  $\frac{1}{4}$  inch thick so as to finish to the dimensions given in Figure 60. Care must be taken to avoid getting too much stock in the shank. It is a very easy matter to get too much stock between the handle

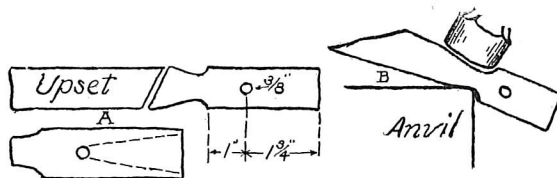


Fig. 61.

and the shoulder which, when drawn out, is too long. The prongs are roughly made by cutting the stock out as shown by the dotted lines in Figure 61. When this is done the prongs are hammered out to the correct size, allowing for finishing.

In Figure 62 is shown a reproduction of similar forks. The line shown running around the rectangular open parts is inlaid copper. A channel is sunken and the copper driven into it. In making the handle, the three oblong holes are punched while hot with a punch about 3-16 by  $\frac{5}{8}$  inch at the end, making a series of punchings to cut out the holes. The holes should be small enough so that they may be finished to size with a file. Notice that the openings are not of the same

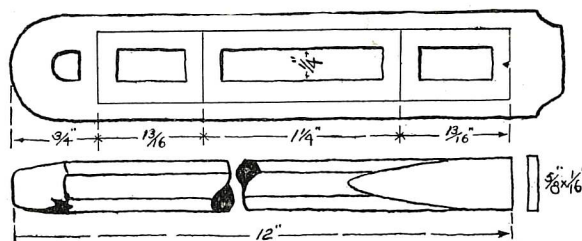


Fig. 63.

size; but two short ones, with a longer one in the center, gives variety. Notice, also, that the shape of the handle is in keeping with the long, slim shank and the slender, two-tine fork at the end.

After the handle is shaped and the holes punched, including the one at the top to hang the fork by, the line to receive the copper is marked. (See Figure 63.) The marking should be done with a scratch awl. The line is then cut with a small chisel. This cutting should be quite deep and exact. This is important if the work is to be true and straight. All of the marking should be done while the handle is cold. It is now heated and taken to the anvil. A small punch, as represented in Figure 63, is then set onto the cut line and given a blow with the hammer, sinking the punch about 1-16 of an

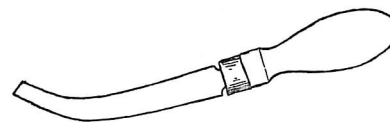


Fig. 64. File.

inch. One-half of the punch is now raised up and out of the channel. While it is directly on the chased line, it is given another blow with the hammer and so on until the end is reached. The particular thing to watch is to have the lead corner of punch directly on the chased guide line, while the other edge of the punch is in the channel in order to keep the finished line straight. Keep the punch in good order, straight and square at the end. The punch should not have much taper and should not be used after the red heat leaves the metal. After the



entire line has been sunken 1-16 of an inch deep, the handle is reheated and the line is sunken perhaps  $\frac{1}{8}$  of an inch deep.

A wider punch is now used in the long channel to straighten it and make it deeper. The wide punch should have no taper and should be a scant 3-32 of an

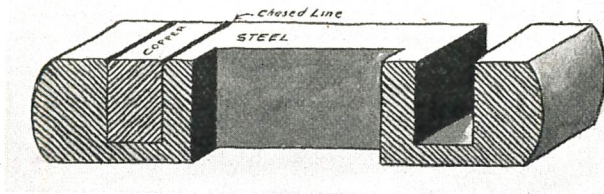


Fig. 65. Cross Section of Fork Handle.

inch thick so that the line will be about 3-32 of an inch wide. If any part of the channel should be too wide, the handle should be hammered on the edge with a light hammer to close the channel a little. When the channel

is finished, the handle should be filed flat on the channel side. This will give one a better view of the straightness of the channel.

In case the channel is not as straight as it should be, a small flat file is heated and bent at the end and rehardened. (See Figure 64.) This file is used to straighten up the edges of the channel. A small cold chisel can also be used for this purpose. The channel must be straight along the top edge. When the channel is well straightened, strips of copper are filed to fit the channel, letting them project above the channel about 3-32 of an inch and also having each piece a little short in length. When the pieces are all in place, the handle is set on the anvil and with a heavy hammer they are driven down forcing the copper to fill the whole of the channel. The entire handle is filed to the dimensions given in Figure 63.

Notice Figure 65 which shows a sectional drawing of the handle, with the copper in place and a chased line running along between copper and steel. A channel without copper is shown at the right of the illustration.

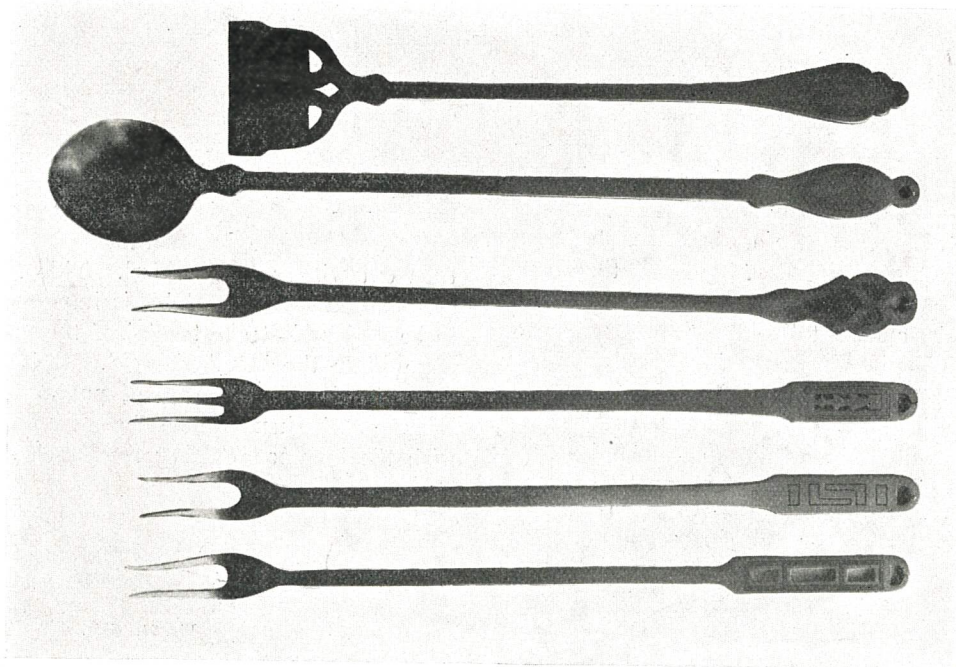


Fig. 62. Toasting Forks, etc. Forged by Mr Googerty.



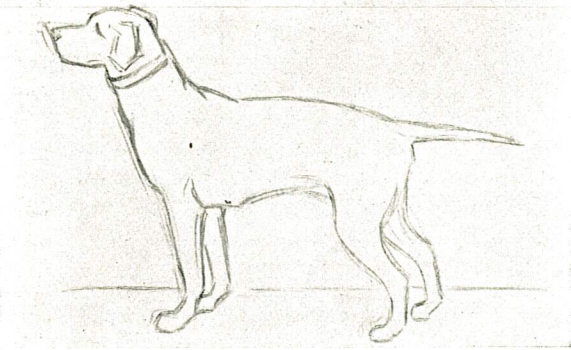


Illustration 19. Sketch of Dog.

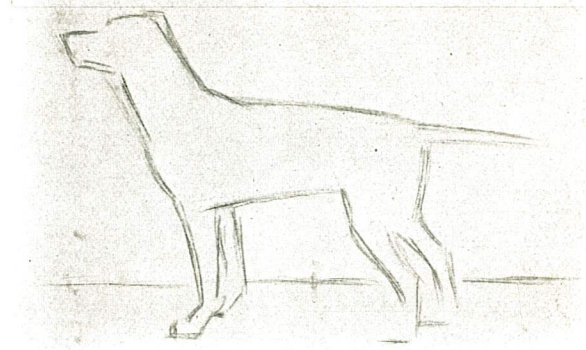


Illustration 19a. First Stage of Sketch. Permission, The Prang Co.

## COSTUME DESIGN AND ILLUSTRATION

### SHORT CUTS TO ANATOMIC EFFECTS

Ethel H. Traphagen

#### SKETCHING FROM LIFE.



**S**KETCHING from life is strongly advised; drawing from the nude is of great advantage when done with understanding. In all sketching and drawing it is advisable to block in, or in other words sketch with light lines, the general proportions, using tentative or trial lines feeling for the form. See illustration Numbers 19 and 19a.

Never complete one part before another part is thought out; never fix your attention on the outline but rather on general proportion or the results will be unhappy. (See illustrations 19b, 19c.) Decide where

your drawing is to begin on the paper and where it is to end, leaving good margins, (more at the bottom than top), and block in between these spaces. When doing rapid sketching to catch the action of a figure in motion indicate position of head, hands, and feet, and fill in the rest.

These quick sketches often afford good action poses that can be carried out and used to great advantage. This sketching will be most helpful in assisting the student in obtaining a professional touch and an individual style.

More and more stress is being laid on the well-drawn figure underlying the fashion drawing and too much emphasis cannot be put on the value of drawing this figure with understanding and appreciation. Great



Illustration 19b. First Stage of Sketch of Boy.



Illustration 19c. Sketch of Boy Completed. Permission, The Prang Co.





Illustration 20. Permission, Gerhard Mennen Co.

care should be given the study of hands and feet as these play an important and telling part in fashion work. See illustration Number 20.

Color notes, put down in a sketchy way from life, are extremely valuable and train the eye to appreciate color effects as well as masses and line.

A most important thing to observe is the way the light falls on a figure. This is a consideration which cannot be emphasized too strongly in every division of your work—pencil, ink, wash and color. Diligent study of the way the light falls will enable you to get wonderful and striking effects.

#### LAY-OUTS AND REDUCTIONS.

"Lay-out" is the technical name given to the composition of a catalog page, and the drawing of the figure.

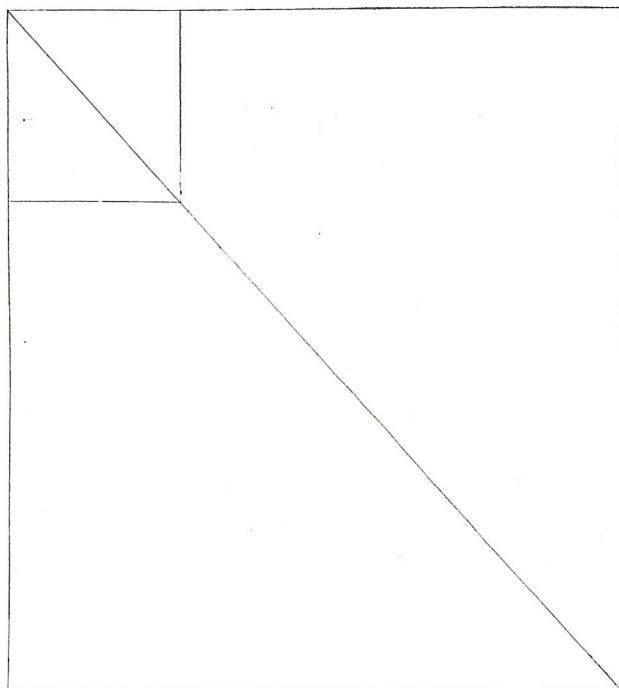


Illustration 21. Arrangement of Layout for Making Reductions.

It is also applied to the grouping of any kind of object to be put in a certain given space whether it be for magazines, booklets or newspapers. The height and width of the space which the layout is to occupy on the page is given to the artist, (for example eight inches high by seven and one-quarter inches wide) and the number of figures to be put in that space (say five figures). The artist's work is to compose these figures in the most attractive group or groups.

The first step is to enlarge the dimensions to a convenient working size. But be careful here to keep the original proportions. This enlarging is done by means of a drawing board, "T" square, ruler and triangle.

For example: draw a horizontal line, say two inches from the top of the paper, straight across, using the "T" square, the head of which is held against the left edge of the drawing board. Next measure in, let us say, two inches from the left side of the paper the vertical line drawn against the edge of a triangle, its base resting



Illustration 21a.

against the upper edge of our "T" square blade. At the left hand upper corner measure seven and one-quarter inches to the right and eight inches down with the ruler, using the triangle to perfectly complete this little rectangle; then draw a diagonal and determine the height desired for working out the lay-out and extend a horizontal. Wherever this horizontal touches the diagonal, erect a perpendicular and the dimensions of the large and small rectangles will have the same proportion. See illustration Numbers 21 and 21a. Catalog pages often go thru many hands before they come out the technically finished product, photographically perfect but often stiff, inartistic and uninteresting.

There is often a special artist who does nothing but layouts, another who puts in the heads, another who makes sketches of the garments and another who draws them on the laid-out figures—another who puts on the large washes, another who does the details such as lace and embroidery, and still another who finishes hands and feet. When, however, this work is done thruout by one expert artist a much more interesting effect is obtained. See illustration Number 22.





Illustration 22. Permission, John Wanamaker.

Each line bounding the lay-out must be touched by some part of some figure, making the space given a necessity. The better the lay-out artist the less space will be wasted. It will be found advisable to give the center to the figure with the darkest clothes as this is found most agreeable to the eye, and also sets off the other figures to advantage.

For the principles of general composition which underlie all design you will find it helpful to read "Pictorial Composition" by Henry A. Poore.

#### SKETCHING FROM GARMENTS.

A knowledge of the proper way to sketch garments, such as gowns, hats and accessories is absolutely necessary in fashion work. It is helpful, first, for your own convenience, when you see things you wish to remember, or when you wish to explain things you have seen to someone else, next in gathering ideas to adapt to your own designs, and again in doing sketching for newspapers and magazines. Designers for manufacturers find it a great boon to be able to sketch in their exploring trips in the shops.

Sketching for manufacturers is done for two purposes—to give them the latest models from the "Openings" by which to make exact copies or something adapted to their special trade needs—and sketching the manufacturers' own stock to give them an inventory for their reference and convenience.

Sketching for dressmakers is a little line of fashion work all its own. The sketches for them must be daintily finished as they are to be shown to the customer and



Illustration 22a. Permission, John Wanamaker.

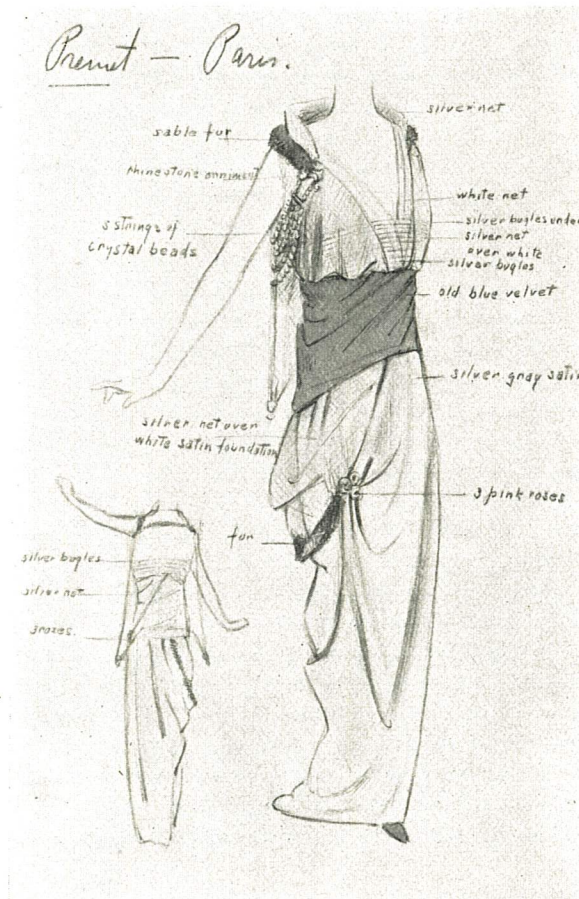


Illustration 23. Preliminary Pencil Sketch for a Gown.



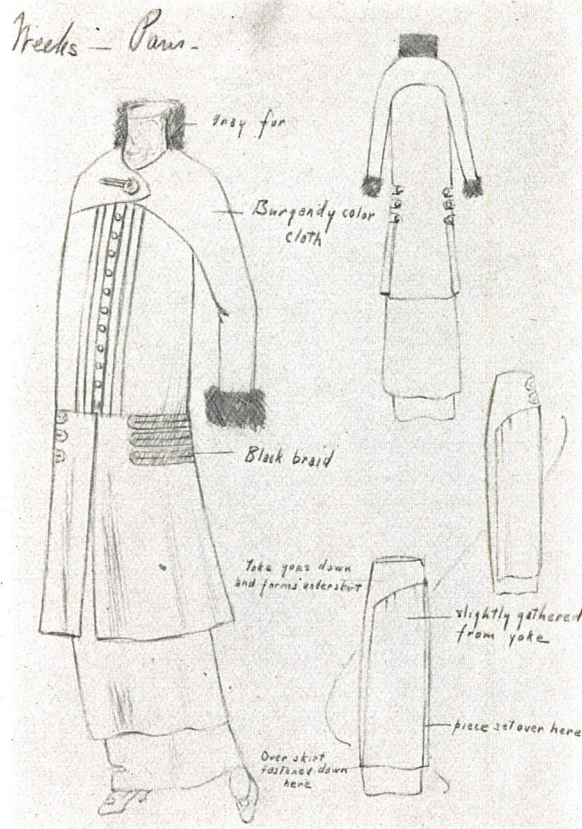


Illustration 23a. Pencil Sketch for a Suit.

play an important part in the sale of the gown represented. The simple ones—see illustration Numbers 23 and 23a—are just done in pencil, without heads, but with a stylish foundation form underneath, with sometimes a little color added in the background to throw the sketch out. Sometimes they are still more finished tho without heads, but as a rule the more finished dressmakers' sketches are done on figures expressing some action and illustrating the presumed effect of the gown on the wearer. See illustration Number 24. All rough or preliminary sketches are started in the same way. The professional method is to first draw your ovals constructing a form as in illustration Number 1, and the description given. Observe the center line which is an infallible guide and observe where it comes in the garment you are sketching. This will give you the proper relation of the garment to the sketch. Next get the large important facts such as length of sleeves, length of coat, the long important lines, and be most particular to put in seams, but leave the details as embroidery, lace, tucks, plaits, gathers, etc., until the last. When sketches are being done for embroideries an additional small detail drawing should be made of the embroidery at the side of the paper. You must strive for skill and rapidity in this kind of pencil sketch, keeping it clean, with textures and colors noted in order not to be confused when making the finished sketch at home or in your studio. A convenient size for finished dressmakers' sketches is from



Illustration 24. A Complete Dressmaker's Sketch.

ten to twelve inches, when heads are included; without heads, six and one-half or seven inches. Wide margins lend distinction.

When making a finished sketch of this kind a pretty pose should be chosen and this thought out and practically finished in pencil; then draw in the garment carefully before putting on the color. The usual method is to put in the shadows first; the light big washes next and the detail last. Clear color is used as a rule, but sometimes opaque paints or "tempera" colors are substituted, as will be shown later. Pen and ink outlines are often used for these sketches and kid bristol is considered the best kind of paper.

In sketching hats, care should be taken to express the most characteristic side of the hat; in other words, catch its "feature." Be careful not to lose the relation of the crown of the hat to the head. When possible it is best to have some one pose for you to insure the right angles.



# CO-OPERATION OF DOMESTIC SCIENCE DEPARTMENT AND COMMUNITY

Don C. Bliss, Superintendent of Schools, Montclair, N. J.



THE addition of domestic art to the curriculum of the public school comes as a direct result of a demand by the community for a training which shall prepare young women for their future career as housewives. In many cases this expectation has not been realized. Too often the work has been conducted upon an academic basis and the pupils have failed to make any vital connection between the school theory and the home practice. The school is not entirely responsible for this failure, for it has found great difficulty in adjusting its methods to a practical basis. The problem has been to secure quantity results at the small portion cost.

Cooking in microscopic quantities for the sake of economy of material in no way duplicates home conditions and gives little real training for its responsibilities. On the other hand, the cost is prohibitive if every girl in a class of twenty makes rolls in the quantity expected in the average family. These two factors, which seem to be in direct opposition, must be reconciled if domestic science courses in the public schools are to realize the purpose for which they are established.

Montclair has attempted to solve this question by making an alliance with the home. On the day when bread making is scheduled, the members of the class are privileged to take orders from the home for a certain number of loaves, to be furnished at the cost of material. The girls now are cooking in sufficient quantity to duplicate home conditions and consequently the training is worth while. At the same time, the work is done at no cost to the department, and best of all, there is no waste of good material. Incidentally, the school receives two by-products which are of no inconsiderable value. In the first place the home is very much interested in the girls' work and the plan tends to establish a very cordial relationship between the school and the home. In the next place, the department is stimulated to do its best. It would never do for a pupil in the domestic science class to report that the cook's bread is much superior to her own.

Last year one of the school kitchens turned out in a single day 120 dozen cookies; 60 dozen doughnuts was another result of this plan. One order was received for eight quarts of mincemeat. Canning on a practical basis receives considerable attention; 28 quarts of tomatoes and two gallons of chopped pickles are representative undertakings. Housewives can well afford to avail themselves of the opportunity. A first class product is furnished at the actual cost of the material plus 10 per cent for fuel.

Another phase of this practical work is the cooking and serving of complete meals in the school dining room. At one meal served last year the meat course was roast chickens, purchased with money secured by the

sale of green tomato pickles. The tomatoes were raised in the school garden and prepared by the girls in one of the regular classes.

Here is complete correlation: tomatoes raised in the school garden, made into pickles in the school kitchen and the product sold to purchase chickens for a meat course at a school dinner. The only thing lacking is an agricultural course in which pupils are taught to raise the chickens.

The success of this plan suggested the possibility of courses which would directly benefit housewives. Courses in domestic art had been offered previously in the evening schools but they had met with little or no response. The suggestion was made that this failure was due to the fact that housewives did not care for a complete course in domestic science and that a short course, covering some specified phase of the subject would meet the needs of the community. After careful consideration the following circular was printed in the school print shop and sent into the homes of all school children.

## Short Courses in Domestic Science.

Beginning Monday, January 19, 1914, the School Department of Montclair will offer short unit courses in Household Arts for all those interested in such training. Some of the suggested courses are as follows:

- 10 lessons—Bread, rolls and biscuit.
- 10 lessons—Desserts.
- 10 lessons—Salads and salad dressing.
- 10 lessons—Canning and preserving.
- 10 lessons—Fancy cooking.
- 10 lessons—Invalid cooking.
- 6 lessons—Marketing.

Each course is complete in itself. Membership in one class obliges no one to take the other courses. If the members of the classes so desire, the instruction will be given in the form of demonstration lessons. The classes will meet at any hour satisfactory to the students. A small fee will be charged to cover cost of material. Those wishing to join any of the groups are requested to give their names to Miss Bridge, Miss Hanson or to the Superintendent of Schools.

*D. C. Bliss, Superintendent.*

The results were a genuine surprise to the school department. At the first registration over two hundred women presented themselves. Groups were formed in accordance with the wishes of those who had registered. These groups retired to different rooms where teachers met the women and discussed plans for carrying on the work. The place and the hour for each class was fixed in accordance with the wishes of the group, and the available time of the instructors. In no case were they allowed to interfere with the regular duties of the teachers.



As a result of the conference the following schedule of classes was prepared:

**Monday.**

*Mount Hebron*—4:15 p. m. Marketing with practical work in cooking. Cost for course, \$2.00.  
*Central School*—4:15 p. m. Chemistry of foods with practical menus. Cost for course, \$1.00.

**Tuesday.**

*Central School*—3:30 p. m. Marketing with practical work in cooking. Cost for course, \$2.00.  
*Central School, Domestic Science Room*—7:30 p. m. Salads and desserts. Cost for course, \$4.00.

**Wednesday.**

*Central School and High School Annex*—3:30 p. m. Theory of marketing and fireless cooking. Cost for course, \$1.00.  
*Central School, Domestic Science Room*—3:30 p. m. Salads and desserts. Cost for course, \$4.00.



Special Class with Lunch Trays Ready to Serve the Teachers in the Buildings.

**Thursday.**

*Central School, Domestic Science Room*—3:30 p. m. Bread and rolls. Cost for course, \$1.00.

**Friday.**

*Central School, Domestic Science Room*—Household routine. Cost for course, \$1.00.

First Lesson Thursday, Jan. 22nd.

NOTE—In order to enable us to buy the materials, the fee for the course should be paid at the first lesson.

The program outlined represents a very heavy classification for the instructors, but for the sake of the success of the plan both of them were willing to carry the burden. Incidentally it furnished an opportunity to both instructors to make a substantial addition to their salaries, for it did not seem just to ask these teachers to do the extra work gratis. The total amount in salaries for the eight courses, totalling eighty lessons, was \$300. According to the state law in New Jersey, half of the cost of vocational courses approved by the state department is paid by the state funds. Such approval was secured at the outset so the total cost to the city for these eight courses was but \$150. The fees paid by the class membership totalled \$287. This covered the actual cost of the materials used, and also provided some extra equipment. Two fireless cookers of the most approved pattern and a number of good charts were purchased and remain in the regular school kitchen.

The housewives saw in these courses an opportunity to secure for their maids a very essential training. Accordingly, they requested that courses designed for maids be offered this year. As the average kitchen maid is not inclined to give up her free afternoons, allowed by

custom, for additional training, the housewives proposed to allow them an additional afternoon per week provided they would use this time in taking courses adapted to their needs. At the present time they are perfecting their plans for such courses to be given early in the new year. Time will tell whether this plan is feasible or not.

Many of those who registered last year were attracted by the novelty of the scheme and no one expected as heavy a registration this year. In fact this was not desired as the number was too large to be cared for in a

satisfactory manner. It was thought advisable, however, to extend a similar offer to the city. No individual notices were printed but ample notice given thru the newspapers. Some forty or fifty women registered for the first semester and the indications are that an equal number will register for the second semester. This is as large a number as is really desired and represents the normal demand for such work.

The effect of these short courses is felt in the evening schools this winter and in response to definite demands three sewing classes have been established. In one center a class in sewing has been opened, made up of mothers from the best families in the town. In another center is a group of young women consisting largely of clerks and stenographers who wish to learn to sew. In the third center is a class in elementary cooking, made up of Italian women. Here the plan is not to teach fancy cooking but rather to show them improved and economical methods of cooking their own national foods.

The evening work is not confined entirely to domestic art. The gymnasiums are open to any group wishing to avail themselves of our equipment. Eight groups use two gymnasiums every night that the night schools are in session. Three of these groups are women and five are men. One of the most interesting is a group of colored maids from the Colored Y. W. C. A. Surely it is better to furnish healthful physical recrea-



tion for the girls than to allow our buildings to stand idle, and send them to the dance halls for their amusement.

The idea that the schools are for the use of children five hours daily and for children only, is no longer tenable. Large sums of public money are invested in school buildings. If the public is to receive an adequate return

for this investment the buildings and equipment must be used a maximum amount of time. The directors of a manufacturing plant would be held culpable in the highest degree if they allowed any department to remain unnecessarily idle. Profits come from capacity use of equipment. In the same way the public benefits from the largest possible use of the public buildings.



Fig. 1. Goldie Locks and the Bears.

## A SCHOOLROOM FRIEZE

Lila Irene Lewis, Belvidere, Ill.



It is our aim to correlate "as far as we are able" the *arts* with other school interests, History, Literature and the like, and surely in the lower grades there is an abundance of material!

Our very best problem in the First Grade was a co-operative one based on the story of "Goldie Locks." The children, brimful of the story, "mobilized forces" and produced the interesting story in silhouette. (See Figure 1.)

At the beginning of the school year we worked out our *first* action figures by the following method (which was later readily applied to their "Goldie Locks" problem):

"Have *you* ever seen my *little soldier boy*—heels together, head erect, chest high, arms to the side? We will have someone stand before us *just that way* and while he is looking out of the window we will snap his picture—*snap* it with scissors and paper. Down at his heel we will start, cut up to the knee, to the waist, neck, around for the head, down to the waist, to the knee and now mind that you *do not cut off his foot!* A pretty good little soldier! (See Figure 3 A.)

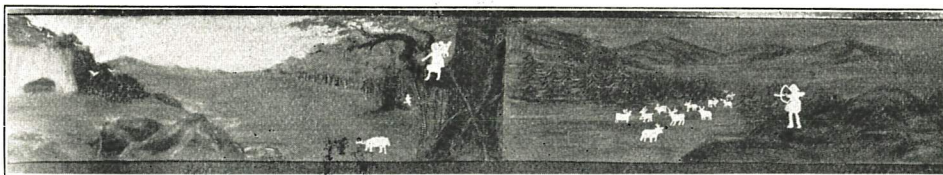
"What's that? You think a *real* soldier would carry something! A good idea! What would he carry and *how* would he hold it? Will someone show us? While he holds the "gun" we will take his picture, starting at his heel, snipping, snapping just as before until—*what* shall we do *when* we reach the extended arm? 'Cut out!' Very well, and then on down to the foot again. (See Figure 3 B.)

"A *standing army* for sure! Could someone suggest something else for our soldier to do? 'March!' Will you show us *how* a marching soldier would look? How will his picture vary from the others? Now *you* may snap this little man alone and *be sure* to show me whether the foot in air points *up* or *down!*" (See Figure 3 C.)

I have used this method, with variations, over and over again and have found it *just the thing* to put bubbling *life* into silhouettes, to develop proportion, nor the least of it all, interest and enthusiasm.

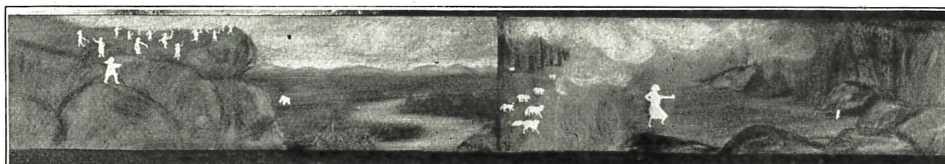
Our "Goldie Locks" Frieze is made on a strip of light-brown oatmeal paper, 5½ yards long and 18 inches wide, and extends along the sidewall just over the blackboard.

In the Second Grade the children were interested in



1. Ab in the Woods.

2. Ab's New Weapon.



3. The Hunt.

4. The Wall of Fire.

Fig. 2. The Story of Ab.



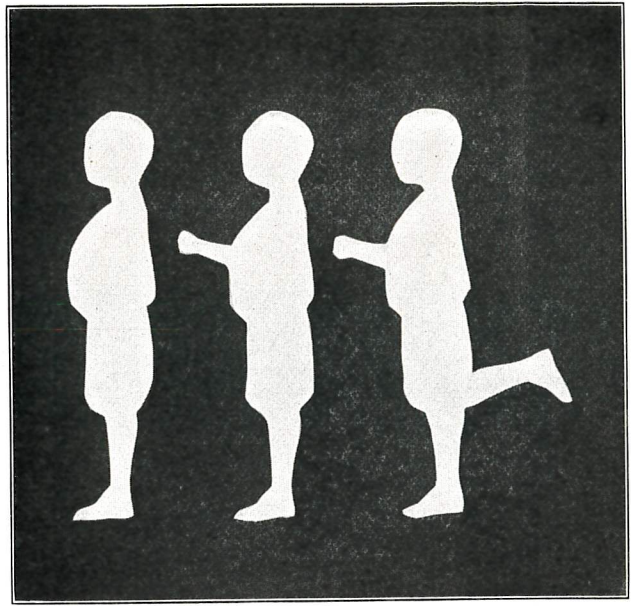
the story of "Ab, the Cave man," and asked for a frieze for their room to illustrate it. They, themselves, suggested the *subjects* for illustration, likewise *what* should appear in the pictures. So, altho I be-chalked in color the backgrounds for their cuttings—the backgrounds, too, are *their* thoughts expressed thru me.

The sections in the "Ab" story illustrate (See Figure 2):

1. Ab, the Babe in the Woods.
2. Ab makes a *new* weapon.
3. The Mammoth Hunt.
4. Ab jumps thru the Wall of Fire.

This frieze is made on dark-green tailor's paper, 6½ yards long and 14 inches wide, and occupies the place of honor at the front of the room.

The children fairly revel in this sort of a schoolroom decoration. It is a part of *them*, they are a part of it—an artistic, educational, *ever-present stimulus* for better work.



A B C  
Figure 3. Soldiers.



EXHIBITION OF STUDENTS' WORK, DELRAY SCHOOL, DELRAY, FLA.





## A LITTLE ARGUMENT ON GREAT PRINCIPLES

"ART AND HAPPINESS"



SOMETIMES wonder," complained Try Square, after a long, hard, school day, "whether it is all worth while or not.

"The aborigine must have been a happy man with no refined sensibilities; no sense of responsibility; no exposed nerves to tingle with apprehension at his sordid surroundings; no taste for flavors he could not afford; no ear for discords; no eye for beauty and no desire unsatisfied. What think you, Mr. Frills?"

"What do I think of the aboriginal man"? answered Frills. "I don't think much of him. He was a lazy and selfish animal.

"He insisted on the women doing the work and was satisfied with an executive position.

"Besides, I doubt if he was as happy as you represent him to have been."

"The aborigine not happy!" exclaimed Try Square.

"How can you conceive him unhappy, Mr. Frills, with no cultivated desires and therefore no need to satisfy them?"

"You surely would not deny that contentment is a form of happiness and that contentment is due to a lack of desire."

"No!" answered Frills thoughtfully; "I agree that contentment is one form of happiness and that it may be due to a lack of desire, but is not contentment a comparative kind of happiness?"

"Contentment is a *mild* form of happiness and due to a lack of desire, therefore it is *undesirable*.

"Right living is a fine art, Mr. Try Square, and Art is ambitious."

"Yes! Yes! I thought you would come around to ART, Mr. Frills," said Try Square with conviction; "I am pleased to learn one more definition of Art. If you keep on with definitions of Art, the word will need a dictionary of its own, Mr. Frills."

"And so it should have!" exclaimed Frills. "And the definition of The Art of Living should fill the first and last chapters.

"Indeed, there need be but two chapters in the Dictionary of Art, Mr. Try Square. The first chapter should teach the desire of Happiness, and the second should teach the Happiness of desire."

"Your contented and selfish aborigine was only mildly happy as compared to the capable teacher who is blessed with the ability to serve."

"It strikes me as a lucky thing for most of us that the New Year gives opportunity for new resolutions."

TRUE art is the overflow of a radiant spirit, and the growth of art in any community depends, not only on the numbers of workers, but also on the number of appreciative on-lookers, creators of an atmosphere favorable to the art spirit.

C. Hanford Henderson



# INDUSTRIAL-ARTS MAGAZINE

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## EDITORIAL

### TO A CRITIC.

A correspondent writes: "I want to criticise the Manual Training Work in the schools as being too academic and theoretical, and not practical. I have never taught boys, but if I were going to teach boys wood-working, I would first give them a good strong course in the theory of tools, then a course in the care of tools, then a course in the use of tools, and finally I'd give them some lumber to work on."

We welcome your criticism and offer the following reply: You criticise the school work as being academic and theoretical. You evidently do not use the terms to convey your thought since for a remedy you offer a plan which is absolutely and wholly academic and theoretical. Therefore, like Shorty McCabe, "We don't get you, but we feel the jab."

From our point of view, it would be the poorest kind of either theory or practice to undertake to teach a boy the use of tools without letting him use them. Any good manual training teacher will give boys all you suggest and more, but he does it in the thoroly scientific way of turning theory at once into practice so that the one strengthens and reinforces the other.

There is abundant room for just criticism of much manual training work. And yet many of the conditions under which manual training teachers struggle are anything but conducive to first-class work. Besides, the boys below the high school get no more than 56 hours of work in a year.

Manual Training teachers should and, we believe, do welcome criticism and, for the most part, profit by it.

Let us suggest, however, the following points to the critics:

*First*, familiarize yourselves with what is actually being done in the manual training shops of your community, and the conditions under which it is done.

*Second*, make definite, fair, constructive criticism; do not generalize in vague terms.

*Third*, do what you can to remedy the unsatisfactory conditions under which the work must be done, then insist on a teacher who can give you first-class service.

### DEMOCRACY IN EDUCATIONAL ASSOCIATIONS.

It is an interesting fact that some schoolmen, like some old-style politicians, still believe that things must be done by caucuses and cliques. A prominent Easterner said: "You have queer ways of doing things out in

the Middle West. Don't your leaders have a slate before the elections occur, for officers in your organizations?" Well, no, they don't any more—we've outgrown that system. There used to be such slates but people found out that it wasn't economical to make such luxuries only to have them smashed. So in the Middle West, at least, "Official Slates" and slate makers are relegated to the museums with the other slates of boyhood memory.

### PREPARATION OF TEACHERS.

WHEN all of the "promoting" has been done, when state and national laws providing for vocational education have been enacted, when the vocational schools have all been established, then we, as teachers, shall be called upon to "produce the goods." The quality of the results will depend entirely upon the quality of the teaching which is done in the schools. Let us not forget this.

It behooves us, therefore, to look well to the provision of well prepared teachers. While it may be expedient to employ emergency measures in order to provide teachers quickly, we should not place our stamp of approval upon any scheme for the training of teachers, which does not provide for the *thoro* training of carefully selected men and women.

### SCHOOL ACCIDENTS.

RECENTLY a young man in Buffalo, N. Y., sued the city for \$10,000 damages for the loss of parts of some of his fingers sustained while operating a jointer as a student in the Technical High School. The judge granted a non-suit on the grounds that the municipality should be exempt from paying damages in a case of this kind, because public schools are not operated for profit, thus being in a legal situation different from that of a concern run for profit.

In a school in Wisconsin, a boy was employed at 20 cents an hour to make some equipment for the schools. The boy was injured and collected damages from the school board under the provisions of the Employers' Liability Law.

In the case where the injured party was an employe, damages were allowed. This leads us to suggest that shop teachers would do well to investigate the legal status of school accidents both in regard to themselves and their students. Accident insurance companies rate manual training teaching as a semi-hazardous occupation.

### CONSERVATION OF TEACHERS.

WHILE so much energy is being devoted to the preparation of competent teachers for industrial schools—persons trained to use modern methods in modern schools—many times these young teachers must go into schools supervised by persons who gained their experience in the schools of thirty years ago. These principals and superintendents immediately begin to try to make the teacher over to suit their ideas. Our young teacher has been taught that the chief consideration in any school is the child, not the course of study, nor the routine, nor a program, nor college entrance requirements. He has planned and outlined courses of study based upon social situations and the interests of the child.



Instead of the conditions which he has been taught should exist in a school, he finds that the equipment of his shops has already been provided, he is given a set of blue prints giving the exact dimensions of the abstract exercises in the "course," and he is told that every child must complete every exercise with a standing of 75%. Even the drawing is standardized so that every view of every problem will be in exactly a certain spot on the paper, and a key sheet is provided by which every "plate" must be graded. Every little detail of every problem has been planned and standardized by a supervisor. Instead of devoting his energies to the proper teaching of boys and girls, the young teacher must make *things* which will make a good showing in the annual "exhibit" which is held at the end of the term.

The teacher chafes, perhaps complains to his fellow teachers and oftentimes to his former teacher, and finally either loses heart and becomes willing to follow a machine-like routine, sacrificing the good of the child for the benefit of the "system," or complains, rebels and resigns or is dismissed. The next superintendent to whom he applies asks for a recommendation from the former employer and when it is not forthcoming he refuses to employ our young teacher.

Such instances are by no means uncommon. The need for efficient supervisors and superintendents is fully as great as the need for competent teachers. We do not hear so much about it in teachers' meetings as teachers do not talk publicly about their old foggy superintendents like superintendents talk about "poor teaching." Nevertheless, teachers have their opinions.

Iron-clad courses of study, fixed standards of excellence, abstract exercises, machine-like routine, compulsory uniformity of methods, fear of criticism, lack of sympathetic co-operation will rob the best teacher of his personality; and it is this quality above all others, which makes for efficient teaching.

#### CORPORATION SCHOOLS.

ONE of the speakers of the last convention of the National Association of Corporation Schools opened his address thus:

"Why is a corporation school?

"Because the corporation believes that it can be operated at a profit. Corporation schools should not be operated for personal gratification, but should be required to justify their existence by results reflected in the profit and loss account."

This quite clearly sets forth the reasons for the existence of corporation schools. There are many young persons with energy and ability sufficient that they may be trained at an immediate profit to the trainer. By placing these young persons at work which is productive and, at the same time educational, corporations are enabled to operate such a school at an immediate profit to themselves. We have no fault to find with them for so doing.

There are, on the other hand, many persons who cannot be educated at an immediate profit. If placed in a school of this same type their productive power is such that the value of what they produce is less than the cost of the operation of the school. Others might be

able merely to produce the cost of the training. These persons are not wanted in the corporation schools but are quickly eliminated. Corporation schools have "elimination" as well as the public schools.

It is quite evident that society cannot delegate to the corporations, the vocational education of all of its young people, since the corporations will select only those that can be trained *at an immediate profit* to the corporation. Society must undertake to develop the productive power of the less productive, and if this cannot be done with immediate profit, it must be done at a seeming loss, but at an ultimate profit. It is a case of deferred dividends.

#### FADDISM AND SINCERITY.

FADDISM seems to be a disease to which the movement in favor of the Arts and Crafts is peculiarly liable. It results, at least in part, from the fact that the best hand-made things were made in foreign countries and in comparatively ancient times, and it is easier to give a superficial flavor of outlandishness and antiquity to a modern piece of work, than it is to make it genuinely good by the application of the same principles which made the old things good. This search for the right old flavor appears in questions of manners and language, as well as in matters of work, and hence we have the affectations which characterize some well-known craftsmen. The flavor and humor of the Arts and Crafts pose appeals to the imagination of some of the members of the public, but it can only do harm to the cause with the public at large. The general common sense of the people in general notices and distrusts any atmosphere of insincerity, however clever; and, without the support of the general public, it is not reasonable to expect permanent success.

What is needed is less pose, more sincerity, and better work.—*Handicraft.*

THE various technical conditions and limitations belonging to the various handicrafts, or the necessities of manufacture—to which the designer has to adapt his conceptions, his schemes of surface pattern, his linear compositions—these (conditions and limitations) really form the instrument upon which he plays. The true musician does not try (or want) to make the violin imitate the harp, or the violoncello, or any other instrument; he desires as an artist to give each instrument its own characteristic expression, and seeks, whatever his instrument, to interpret the music in strict accordance with its nature and construction.—*Walter Crane.*

UNDERSTAND this clearly: You can teach a man to draw a straight line, and to cut one; to strike a curved line, and to carve it; and to copy and carve any number of given lines or forms, with admirable speed and perfect precision; and you find his work perfect of its kind; but if you ask him to think about any of those forms, to consider if he cannot find any better in his own head, he stops; his execution becomes hesitating; he thinks, and ten to one he thinks wrong; ten to one he makes a mistake in the first touch he gives to his work as a thinking being. But you have made a man of him for all that. He was only a machine before, an animated tool.—*Ruskin.*



# NEW BOOKS AND PAMPHLETS

## Workshop Note-Book.

Woodworking. Arranged by George G. Greene. Price, 25 cents. The Manual Arts Press, Peoria, Illinois.

A pamphlet of 22 pages of text matter and eight sheets of blank paper for drawing and notes. The following two statements will indicate the spirit and purposes of the book:

"It is to help the pupil remember what the teacher did and what he said."

"It is not so much what you do as how you do it that counts."

## Laundry Work In Theory and Practice.

E. L. Marsh. 200 pages. Price, 75c, net. Longmans, Green and Company, London and New York.

A remarkably full and complete treatise on the various materials, utensils, and methods used in modern, first class laundry work. There seems to be nothing omitted.

The method of the book is to give a very full and clear statement of the principles, materials, and methods involved in the topic, and then to follow this with a specific application of the principles and methods to the materials in hand.

This volume cannot help but be a valuable contribution to the literature of laundering in connection with the work in Household Sciences.

## The Jolly Book of Boxcraft.

Patten Beard. 188 pages. Price, \$1.35, net. Frederick A. Stokes Company, New York.

One is surprised at the wealth of material that has been marshalled under this title. The book is beautifully printed and excellently illustrated.

The title gives one so little clue to the contents, that it seems worth while to mention several headings to give an idea of the scope covered: "The Boxville Store," "The Shoe-Box Apartment House," "The Houseboat," "Circus Tent and Circus Grounds," "How to Make a Doll's Hammock," "The Game of Shoot the Chutes," etc.

The descriptions and directions are clearly and simply told. The book should be of great assistance to those engaged in elementary or intermediate work in the schools.

## The American Boy's Workshop.

Clarence B. Kelland. 340 pages, cloth. David McKay, Philadelphia.

This book is a perfect storehouse of information for the active, constructive, out-of-door boy. It begins with a chapter on "The Outdoor Boy in Camp." Almost every conceivable thing which a boy would be interested in making either in his play, or in his more serious activities, is described in detail and is illustrated with pen drawings.

Various experts have written the different chapters which have been brought together in book form by the author.

The book should be in every library and in the hands of every boy, not as a guide to his manual work in the school—for such it would not be—but for the inspiration which it gives.

## Metal Work.

A Handbook for Teachers and Students. By Adam and Evans. 336 pages. \$1.40 net. Longmans, Green and Company, New York and London.

This book, as its subject states, is intended for use more as a handbook than a text. It presents in a thoroly scientific manner, an account of the metallurgy of the metals used in a school shop. This is followed by a very complete description of the tools and processes involved in school shop work, together with lists of equipment, and diagrams of the arrangement of school shops. Sixty pages are devoted to problems and schemes of work for schools.

The appendix contains examination questions for manual training teachers given in several English cities.

## Family Expense Account.

By Thirmuthis A. Brookman. D. C. Heath & Company, Boston, New York, Chicago.

This little book traces the financial history of a family of small income, telling in detail how the family accounts were kept and how the income was divided, saved and spent. Primarily the work teaches the mathematics of money and gives all of the processes underlying simple home accounting, investment, banking, insurance, building, etc. No less forcibly it teaches lessons of frugality and self-discipline, of keeping in mind the essential things in life and of subordinating pleasures and luxuries—in a word, of living within one's income. We can readily appreciate that the very typical family problems in the book have caused students to show far more interest and reasoning power than the ordinary arithmetic problems arouse. The book can be heartily recommended to upper grades, high schools and continuation schools.

## Report of Second Annual Convention of the National Association of Corporation Schools.

702 pages. Price, \$5.00. F. C. Henderschott, Secretary, National Association of Corporation Schools, New York.

This report contains a complete stenographic report of all papers, discussions and reports, of the second annual convention which was held in Philadelphia, June, 1914. It contains several interesting charts giving statistics regarding corporation and other trade schools. There is a bibliography of Industrial Education and a list of persons competent to deliver addresses and write papers on the subject.

It is quite interesting as well as suggestive to note the methods by which these businessmen approach the problem of Industrial Education when the complete control of the schools is left to them. The immensity and complexity of the situation has not discouraged them and they are working out their problem in a thoroly scientific manner.

*Domestic Science Outlines for the Seventh and Eighth Grades* of the Plainfield, N. J., Schools. 24 pages each.

These outlines are intended for the use of the girls enrolled in the cooking classes and contain, in addition to a complete outline of the cooking problems to be studied during the year, a large amount of miscellaneous information for the purchasing, handling and use of foods, for the care of cooking utensils and for the sanitary maintenance of kitchens.

*Report on Industrial and Continuation Schools.* By George W. Gerwig, Secretary of the Board of Education of Pittsburgh.

This report presents an account of the writer's conclusions in regard to industrial and continuation schools, drawn after a visit to German continuation schools.

*Some Trade Schools in Europe.* By Frank L. Glynn. Bulletin No. 23, 1914. United States Bureau of Education, Washington.

A brief analytical report on two dozen trade schools visited in Ireland, Scotland, England, France, Belgium, and Germany with a brief account of apprenticeship systems and a translation of some valuable documents on different phases of the general subject. In this report, Mr. Glynn has made no attempt to theorize about the schools or their methods but has presented the most important features of the schools as clearly as possible in order that others may get a correct impression of what he has seen.

*Preparation of Vegetables for the Table.* Reprint of Farmers' Bulletin, No. 256. Issued by Mayor Mit-



chel's Committee on Food Supply, George W. Perkins, Chairman. 800,000 copies have been distributed among the school children of New York City.

*Manual Training in Village and Rural Schools.* By George E. Gray. Bulletin of the Extension Division of the Kansas State Agricultural College, Manhattan, Kansas.

A thirty-three page pamphlet setting forth in a concise manner the reasons for teaching manual training, the cost of equipment together with working drawings and directions for constructing exercises in the elementary schools.

*"The School Shop and the Christmas Spirit."* By Leonard W. Wahlstrom.

A reprint from the Francis W. Parker School Year Book. The booklet describes the work which has been done in the shop of the school during the holiday season for the past three years. The children have brought to the school the discarded and disabled toys and presents of the previous year. These have been repaired and rejuvenated in the school shop and then presented to less fortunate children.

*Glossary of Terms Used in Cabinetmaking.* By Ralph F. Windoes, Davenport, Ia. Paper, four pages.

This little pamphlet has been issued by the author with a view of obviating confusion in the terms used by teachers of cabinetmaking and to fix a standard for the same in classroom teaching and demonstration. No attempt has been made to include tools, hardware supplies, finishing materials, logging or lumbering terms. Seven illustrative drawings are given.

The author will gladly send a copy to anyone interested who will address him at the Davenport High School.

*A Lecture on Cement* has been prepared for schools by the Advertising Department of the Alpha Portland Cement Company, Easton, Pa. The lecture, which will be sent gratis to any school, describes the modern discovery, manufacture and use of cement.

*Drawing and Handwork.* By Wm. E. Braley. 64 pages. A most interesting outline of the new course of study in drawing and construction as taught in the grade and high schools of Fall River, Mass. The pamphlet contains not only specific directions for each grade, but includes particularly valuable suggestions to teachers, list of masterpieces for study, and a bibliography for teachers.

## BRIEF ITEMS OF INTEREST

### MANUAL TRAINING ROUND TABLE OF THE KANSAS STATE ASSOCIATION.

Topeka, Kans., Nov. 12, 13, 14, 1914.

Those who attended the manual training round table enjoyed the best meeting the department has ever had. The attendance, 124, was a record breaker. Mr. Filby said the attendance was above that of the Illinois Association.

The leading address was made by Mr. Emery Filbey of the University High School of Chicago, on "Reorganization of Manual Arts Courses and Their Relation to Industrial Education." He very ably discussed the needs of industrial education and the importance of having manual training teachers who have ability, and courses of study that fit the needs of the community. We train for the professions at great expense but very little is done for the boys and girls who enter the industrial world.

The discussion, led by P. S. Hasty of Topeka, made clear the following fact: You should know yourself, your school, and your community before you change your course of study.

"Printing in the Public School" was discussed by Karl H. Miller of Salina. He spoke at length of the success, both educationally and financially, of the Salina plant. They print their school papers as well as all printing that is needed by the Board of Education.

The discussion by George K. Wells of Emporia, brought out the fact that printing is of as much value to the grade boy as the one who has reached high school.

A very profitable open discussion on "New Kinks for the New Teacher" was led by Charles H. Huey of Arkansas City.

The report of the committee on line notation for mechanical drawing was accepted. The substance of the report was as follows:

Visible outline of object....Full line 1-48" diameter.  
Hidden edges....1-8" dash and 1-16" space, light line.  
Center lines.....Light dot and dash line.  
Projection lines.....Light solid or broken lines.  
Dimension lines.....Light solid or broken lines.

G. E. Bray of Manhattan read a very remarkable paper on "Making the Courses in Manual Arts Practical for an Agricultural Community." He outlined courses which embraced many agricultural projects. His chart outlines were very helpful.

Joseph F. Parks of Wichita led an open discussion on "Supplies and Where to Get Them." He had tool exhibits from many of the best manufacturers of manual training tools. Many addresses were given.

The following officers were elected:

A. H. Whitsitt, chairman, State Manual Training Normal, Pittsburg, Kans.

Charles S. Huey, vice-chairman, Arkansas City, Kans.

C. A. Miller, secretary-treasurer, Parsons, Kans.

*Joseph F. Parks, Secretary-Treasurer.*

### REPORT OF ILLINOIS STATE FEDERATION OF LABOR COMMITTEE ON VOCATIONAL EDUCATION.

THE ILLINOIS STATE FEDERATION OF LABOR in October, 1913, appointed a special committee to formulate and recommend a "feasible plan" of vocational education. On this committee were persons of national prominence in labor and educational circles. Among them were Mrs. Ella Flagg Young, Superintendent of the Chicago Schools; Agnes Nestor, a member of the National Commission on Industrial Education; Duncan McDonald of the United Mine Workers, Mrs. Raymond Robins, and Graham Taylor.

After careful study of the situation the Committee submitted a report to the Federation at its annual meeting in October, 1914. The report was unanimously adopted and ordered printed and distributed among the Unions of the state. The report discusses in detail the "Purposes of Education," "The brief school life of school children, raising of compulsory school age, European methods of industrial education, specialization in industries." The Committee recommends the enactment of state legislation which shall include the following requirements:

*First.*—Compulsory school attendance of all children between the ages of seven and sixteen.

*Second.*—(a) Authorizing the Boards of Education of all school districts in the State to provide instruction in vocational teaching.

(b) Any school district of this state establishing or having established and maintaining vocational instruction in the industrial arts and in agriculture and commerce shall receive increased financial assistance from the State.



(c) All courses in vocational education shall be administered in each school district by the same board of education or trustees that administers the general educational courses.

(d) In school districts maintaining vocational teaching, there shall be appointed, by the board of education, or trustees, an advisory committee or committees on vocational education; each committee to consist of an equal number of employers of labor and persons directly associated and connected with bona fide labor organizations.

(e) Vocational instruction shall include the teaching of the sciences underlying the various industries and industrial pursuits being taught, and their historical, economic and social bearings.

(f) That whenever any employer engaged in any business whatsoever employs any person under 18 years of age, and whenever the services of such employee terminates for any reason whatsoever, the employer shall report such employment or termination of employment at once to the school authorities of the school district, giving name and address, age of such employee, description of character of work to be performed or having been performed by such employee while in the service of such employer, particularly with reference to the skill and knowledge which may be acquired by the employee in such employment, rate of wages paid, hours of service per day, and such other information as may be required by the school authorities of the school district in which such employment becomes, or has been, operative. The school authorities should also be empowered to require any employer of persons under 18 years of age to furnish such additional information as to the employment of such person or persons any time during such period of employment.

(g) All boards of education shall prepare annually a report showing the number of persons under 18 years of age having been employed in the jurisdiction of their respective school districts, showing the ages of such persons employed, length of service, character of employment, wages earned, hours of work required, and opportunities afforded and given for the acquirement of skill and knowledge of such persons while so employed. These reports shall be prepared for general public distribution by the boards of education and copies of same shall be sent to the State Bureau of Labor Statistics.

*Third.*—To protect the public against fraud and misrepresentation, all private schools conducted for profit providing industrial, commercial, agricultural or domestic teaching, shall be subject to inspection and investigation by the board of education in whose district such school or schools are located and whenever such board of education finds that fraud or misrepresentation has been or is being practiced, a report of such finding shall be referred at once to the public prosecutor in that political district, wherein the fraud or misrepresentation has been practiced, for immediate prosecution.

#### MINNESOTA TEACHERS MEET.

The Manual Training Division of the Minnesota Educational Association held an enthusiastic meeting on October 22 and 23. Mr. H. J. Sharr, of Virginia, presided.

The program was opened by an address on "The Future of the Manual Training Teacher" by Leonard Williams, of St. Cloud. Mr. A. V. Storm, of the University of Minnesota, followed with a discussion on "Agriculture and Manual Training." Professor Storm urged the adaptation of manual training to the community, particularly in villages and country districts. The third speaker was Mr. Jesse Davis, of Grand Rapids, Mich., who urged the vocationalization of the curriculum.

The second session was opened with a paper on "Forge Work," by Mr. J. F. Knowlton, of Hibbing. Mr. Knowlton urged the great value of blacksmithing and discussed practical methods of teaching it in the upper

grades and in the high school. Papers on "The Truant School," by Mr. W. R. Ball and on "The Gary System," by Mr. D. D. Mayne closed the meeting.

The Department elected as officers:

President—T. E. Harnsburger, St. Paul.

Vice-President—M. T. Robbins, Albert Lea.

Secretary—C. E. Sanders, St. Paul.

#### A RURAL VOCATIONAL SCHOOL.

A type of secondary school best adapted to the needs of the open country is described by Mr. L. H. Dennis, Agricultural Expert of the Department of Vocational Education, as having been organized at Elders Ridge, Indiana County, Pennsylvania.

This school is under the management of a joint school board of twenty directors representing four school districts. Each of the four boards interested in this school elects one member of the joint school committee, known as the Executive Committee. This Executive Committee manages the school during the year. The joint school board holds an annual meeting for the purpose of electing teachers, fixing salaries and outlining the general policies of the school.

The buildings in which it is conducted were formerly used by the Elders Ridge Academy and have been leased to the vocational school for the nominal sum of \$1.00 per year. The school at present has a faculty of five members,—principal, assistant principal, supervisor of agriculture, supervisor of home-making, and a teacher of music and drawing. Three of these teachers are college graduates; the other two are graduates of normal schools, having had some special training in addition. At the opening of the school year sixty pupils enrolled.

An agricultural laboratory has been provided for the agricultural course, and a shop for the work in farm mechanics. The home-making department has its equipment for the teaching of sewing and cooking.

## FISH

No. 5

(Keep this for Reference)

New York, October 30, 1914

TO THE PURCHASING PUBLIC

### EVERY DAY IS FISH DAY.

The habit of eating fish on Fridays only is absurd and should be stopped. Fish are just as appetizing and nourishing on Tuesdays and Thursdays as on Fridays, and if you and your neighbors will buy fish any day in the week you will get cheaper fish and better fish. Hundreds of carloads of fish are sent from New York to other cities, because the people living here do not appreciate the value of fish as a food and do not buy it as often as they should.

Vary your diet as much as you can. You will be more healthy if you do.

Don't use meat so much. Use fish more.

Fish is just as nourishing as lean meat, and if eaten with bread, potatoes, etc., will supply all the needs of the body.

If possible, buy your fish from a fish dealer.

### WHEN YOU BUY FISH, SEE THAT YOU GET THE TRIMMINGS.

You are just as much entitled to them as you are to the trimmings of your meat.

The meat part of almost any fish may be cooked separately. If you ask your fish dealer to remove the meat part of the fish for you, the trimmings will consist of the head, the skeleton and the fins, and these can be used for fish stock, out of which can be made excellent fish soups and fish sauces.

Halibut costs from 15 cents to 22 cents a pound. Market cod costs about 5 cents less a pound and can be cooked in the same way as halibut. It can be cut up into steaks; it can be boiled; the tail can be split and broiled in the same way that you would broil mackerel or bluefish, and it costs about 8 cents less a pound than either mackerel or bluefish.

Haddock costs about 5 cents to 8 cents less a pound than halibut and can be cooked in the same way. Both cod and haddock are in season all the year and, if properly cooked, are extremely appetizing.

When you buy bluefish, get a large size fish. A large size one costs about 5 cents less a pound than a medium size one, and if you buy a large one you will have enough left over for another meal. Any fish left over can be used to make fish cakes, or it can be creamed and put in a dish and baked.

Many people go to a fish store and buy the fillets of a fish instead of buying the whole fish. A fillet of fish is nothing more or less than the meat of the fish stripped from the skeleton. Some fish dealers have these fillets all ready on a platter for sale, but if you buy them that way you will pay anywhere from 15 cents to 20 cents more a pound for them than if you bought the entire fish and asked your fish dealer to strip the fillets off for you and give you the trimmings.

A very interesting pamphlet has been prepared, giving a list of the fish that can be bought in New York throughout the year. It will also tell you how to cook these different kinds of fish in many ways, how to make various fish stews, fish chowders, fish puddings, etc. You will find this pamphlet very useful and can get a copy of it by sending a postal card, giving your name and address, to

MAYOR MITCHELL'S FOOD SUPPLY COMMITTEE,  
Geo. W. Perkins, Chairman,  
City Hall.

BOARD OF EDUCATION,  
Thos. W. Churchill, President.

5016, '14, 800,000 (P)

THE J. W. PRATT CO., PRINTERS, 52 DUANE ST., N. Y.



The State supports these schools by special State aid to the extent of two-thirds of the salaries of all of the teachers.

#### A FOOD ECONOMY CAMPAIGN.

MAYOR MITCHEL of New York City is conducting a vigorous campaign for pure foods, full weight and economical buying. Several bulletins have been published and 800,000 copies of each have been distributed to the children in the schools.

The bulletins are issued thru "Mayor Mitchel's Food Supply Committee" of which George W. Perkins is Chairman. (Yes the Perkins of Roosevelt fame.) Each Bulletin is also signed by the Board of Education, Thomas W. Churchill, President.

Whether this work is done for political reasons or not, it is accomplishing immeasurable good and is worthy of emulation by authorities of other cities. We reproduce herewith one of the bulletins.

#### PROVINCIAL AID TO VOCATIONAL EDUCATION IN ALBERTA, CANADA.

ON November 2nd, the provincial government of Alberta passed an act providing for provincial aid to Vocational Education in the province.

"To insure that unity of purpose and effort necessary to secure the fullest and most economical use of all accommodation, equipment and specialized service available, the courses and classes affected by these grants are to form an integral part of the school system under the control of the school board and under the general direction and supervision of the superintendent of schools in those school districts where such an official is employed by the board and in all other cases under the direction of a principal to be designated as the supervising principal of the schools of the district."

In order to still further co-operate with the local communities in the development of such special instruction the minister of education has appointed a provincial director of technical education to have general supervision over such special instruction and classes and to perform such other duties in connection therewith as the minister may from time to time direct.

In all cases the local organization, the accommodation and equipment provided, the courses of instruction

and the instructors must be approved by the department of education of the province before the grants may be paid.

The system of grants, which is complicated by the varied conditions to be met in rural, village and city school districts, aims to equalize opportunities. Five types of instruction are recognized: Instruction in science, agriculture and school gardening; instruction in manual training; instruction in household science and art; night class instruction and prevocational, vocational and technical day class instruction. The moneys to be paid to local authorities vary from five per cent to fifty per cent of the cost of equipment, and from \$15 to \$50 for the salaries of individual teachers.

#### A MANUAL TRAINING HOUSE.

THAT Manual Training is worth while, has been visibly demonstrated to the people of Potlatch, Ida., by a group of eight boys. Under the direction of Supt. F. E. Lukens these boys, in July last, took the contract for building a seven-room frame house, and did all of the carpenter work necessary in erecting and finishing it.

The work was begun on June 15th and finished on August 12th. The boys confined their efforts to the carpenter work, since this was the first attempt that had been made to put the plan of boy labor into effect. One experienced carpenter worked with the boys for the full time. However, the work, including plastering, plumbing, etc., was under Mr. Lukens's direction. All of the material for the building was furnished by the owners, and \$850 was spent for labor of different kinds. Of this amount, the boys were paid about \$325. The lowest wages paid to any boy was \$1.00 per day, and the highest was \$2.00. The boys who built the house were not, by any means, all of the best boys in the classes in Manual Training, but the average boys. Four of them were from the high school, three from the eighth grade and two from the seventh grade. The experiment was so successful that it is likely that the plan will be practiced in the future. If it is put into effect again, no skilled carpenter will be employed, and all of the work in painting will be done by boys. Then, too, it will be insisted that the assistants of the plumber and plasterer shall be school boys.

The house is modern in every way and is used as the parsonage of a local church.



A DEMONSTRATION OF THE VALUE OF MANUAL TRAINING.



# HOW IT WAS DONE!

*The purpose of this Department is to present monthly a wide variety of shop projects which have been actually worked out in elementary, high, trade and continuation schools. Contributions are solicited and will be paid for—THE EDITORS.*

## WOOD AND COAL BOX.

THE wood and coal box illustrated gives opportunity for cabinet making along lines a little different from those usually followed in high school manual training classes. Personally when presenting this problem to the class I do not give them the dimensions of the tilting box but leave that for the individual pupils to work out, and I find that some pupils can do original thinking and designing when a definite problem with definite limitations is presented. To ask a high school pupil to design a piece of furniture usually means to ask him to select from some catalog or show window a piece of furniture and make a drawing of it with possibly some minor changes in details; but here is an opportunity for a little bit of original design, and because it presents some difficulties I find that it appeals to most boys. The top of the box which resembles a card or serving table and may be used as such, is made up of several pieces doweled and glued together, or they may be glued together with feathers or splines if the latter process is used. Cut the grooves for the splines to within one inch of the ends of the finished top, so the splines will not show on the ends. In matching the boards for the top the student should follow one of two methods, viz.: select boards with similar grain and match them in such a way that the grain of one board runs uninterruptedly into that of the board next to it. I have seen this so successfully done that it was impossible to find the joint without looking at the end grain.

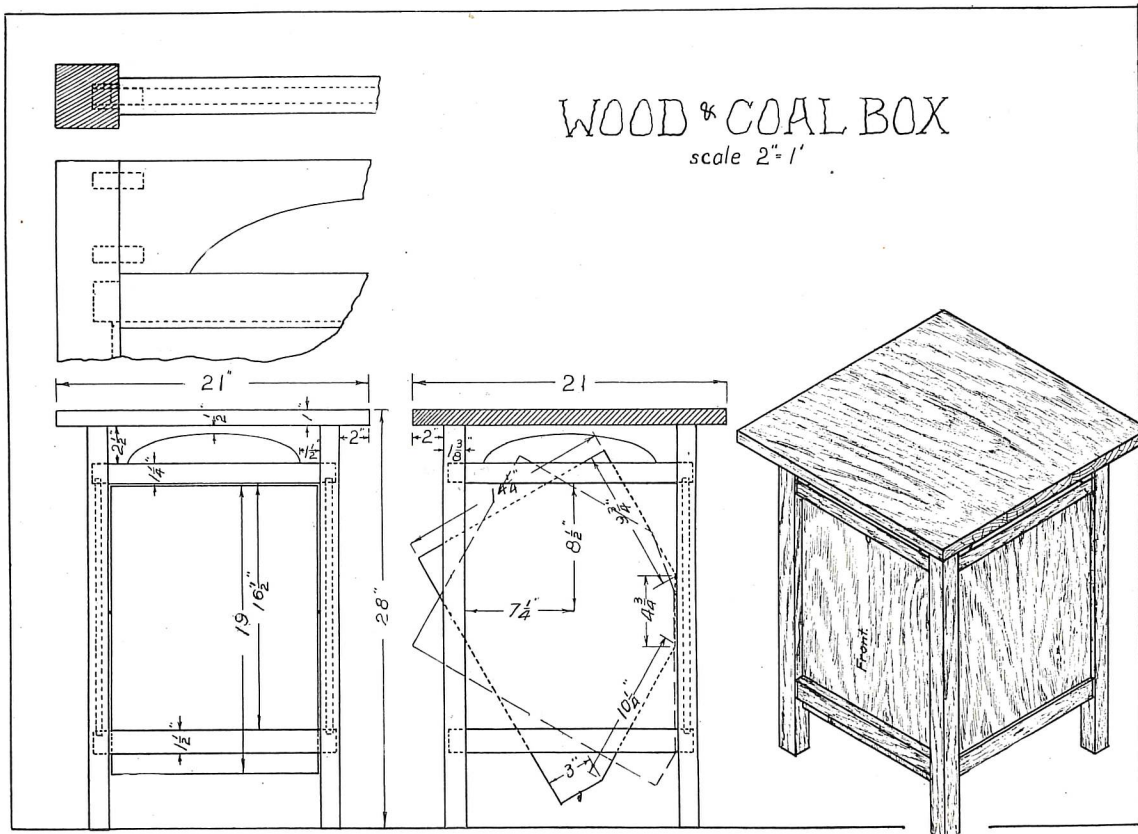
The other method is to match the grains of the boards so that they will make a pleasing design similar to the designs made in fine veneer work when veneers split from each other are laid out flat and edge to edge for a panel. If the school should possess a resaw, this would be a very desirable method to follow in glued up tops for tables.

I have found that the competition for pleasing results in the matching of the boards of the top so strenuous that considerable thought and energy is expended on this phase of the problem. The curved pieces under the top are fastened to the legs with dowel pins and glue, and the working out of this curve affords another opportunity for originality; it may be worked out in angles and straight lines with quite as pleasing results as when the ellipse is used. The top is fastened to the rest of the table by two screws thru each curved piece from underneath into the top but of course not long enough to project thru. The rails are mortised into the legs and are grooved for the three panels; the rails in front are not grooved for there is no panel there. The legs are grooved for the panels also.

The length of the legs should be worked out after the tilting box has been designed; the dimensions in the drawing are just right for a card or serving table. The tilting box is made of  $\frac{3}{4}$ -inch stuff and doweled and glued together and is hung on two heavy screws set thru the sides at the proper place into hardwood blocks which have been screwed to the side panels.

The addition of these blocks insure sufficient material for holding the screws on which the weight of a box full of wood or coal must hang. The panels should not be glued along their edges but should be left free to swell and shrink with the weather; they may, however, be fastened by a dab of glue at the middle of the two ends so that the shrinkage will take place equally from both sides, otherwise one side might be held so firmly that the entire panel would shrink enough in one direction to expose a crack at the other side.

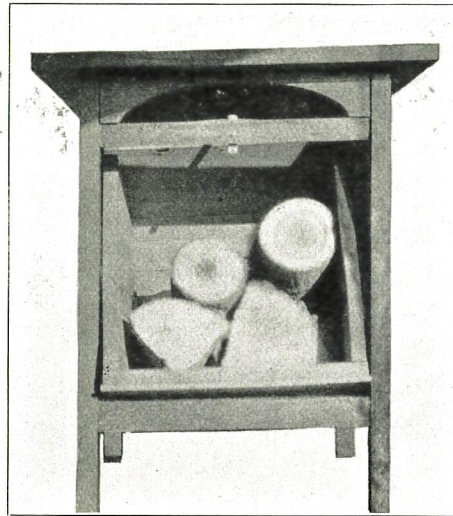
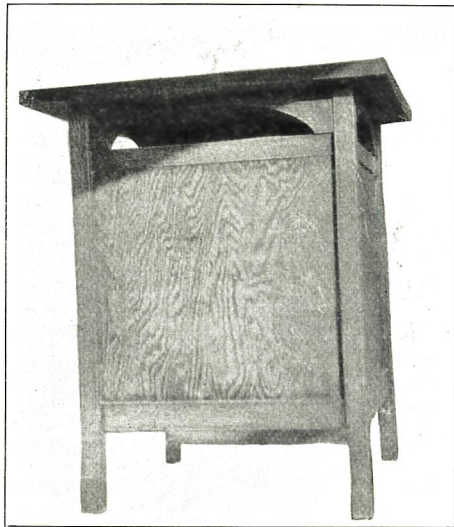
In staining and finishing the piece be sure to stain and finish the panels before placing them in position so that when they shrink there will be no margin of white





wood showing. The end grain of the top should be stained with a thinner stain than that used on the rest of the piece otherwise it will be darker in color than the rest.

sanding will bring out the high lights of the medullary rays or flakes of quarter sawed lumber in a most satisfactory way, but of course too much sanding will attack the shadows also. Too little sanding leaves the surface



The Wood Box Closed and Open.

The large flat surfaces offer splendid opportunities for good work in wood finishing; I find the secret of bringing out the grain and enhancing its natural beauty lies as much in the proper amount of sandpapering after the filler has dried as in all other processes combined. This

muddy and with the appearance of having been painted rather than stained.

Some of the tables have been fumed but only those that have no sap wood and are made entirely of white oak or chestnut.

*Geo. M. Brace.*

#### HOW TO DRAW A SANTA CLAUS.

Edith Phelps, South Bend, Ind.

DECEMBER surely is the most interesting month of all to the children in the lower grades, especially in the drawing class. The toys that they see in the shop windows are drawn; toys they expect to give away and toys they hope Santa Claus will bring on the eventful day, are drawn. Most fascinating and—yet most difficult—to draw, is Santa Claus, himself.

We have been most successful in the third and fourth grades, with the above devices.

(1) Cut a square of paper about 2"x2", fold on the two diameters, sketch a circle in the center about one-quarter of an inch from all sides.

(2) In the center of upper rectangle, draw a horizontal line for the front of cap, round the corners from the sides of cap. In the center of lower rectangle, sketch the moustache and beard. Draw the eyes and shoulders. Paint outlines in heavy black lines, and a flat wash of red on cap and coat. (Fig. 1.) This makes a very decorative unit for Christmas post cards and seals.

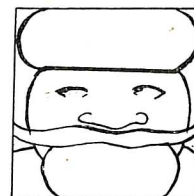
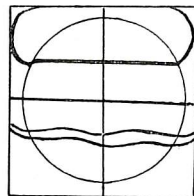
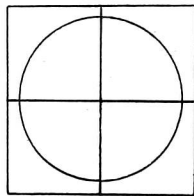


Fig. 1

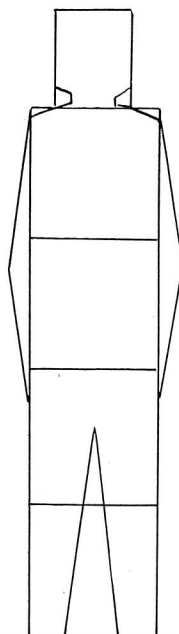
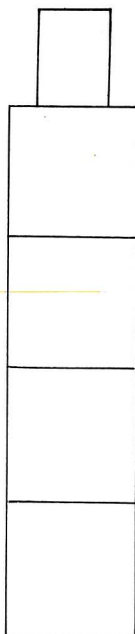


Fig. 2

Fig. 3

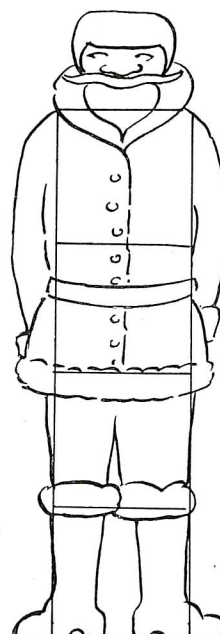


Fig. 4

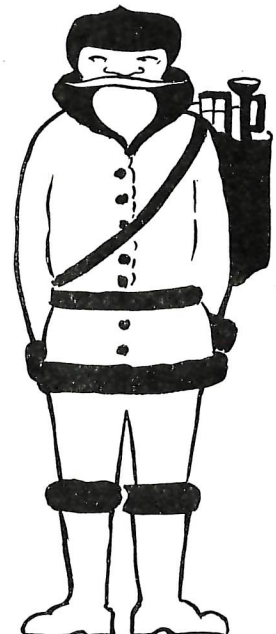


Fig. 5





A Line of Kitchen Stools in the Workshop of the Rock Island Manual Arts School.

Figure 5 shows the entire figure of Santa Claus. Begin by drawing four small squares arranged in a vertical row. On top of the first square, add an oblong two-thirds as wide as square. (Fig. 2.) Figure 3 shows the divisions of the body. After once learning the diagram, let the class work out original figures, as the policeman, postman, soldiers from all the countries, football boy, etc. Figure 4 shows the Santa Claus costume. It is very interesting to sketch these figures on tinted paper and add the proper colors with crayons.

This problem not only involves good space relations in designing the costume which is the first requisite of costume designing, but also brings about a practical application of color theory.

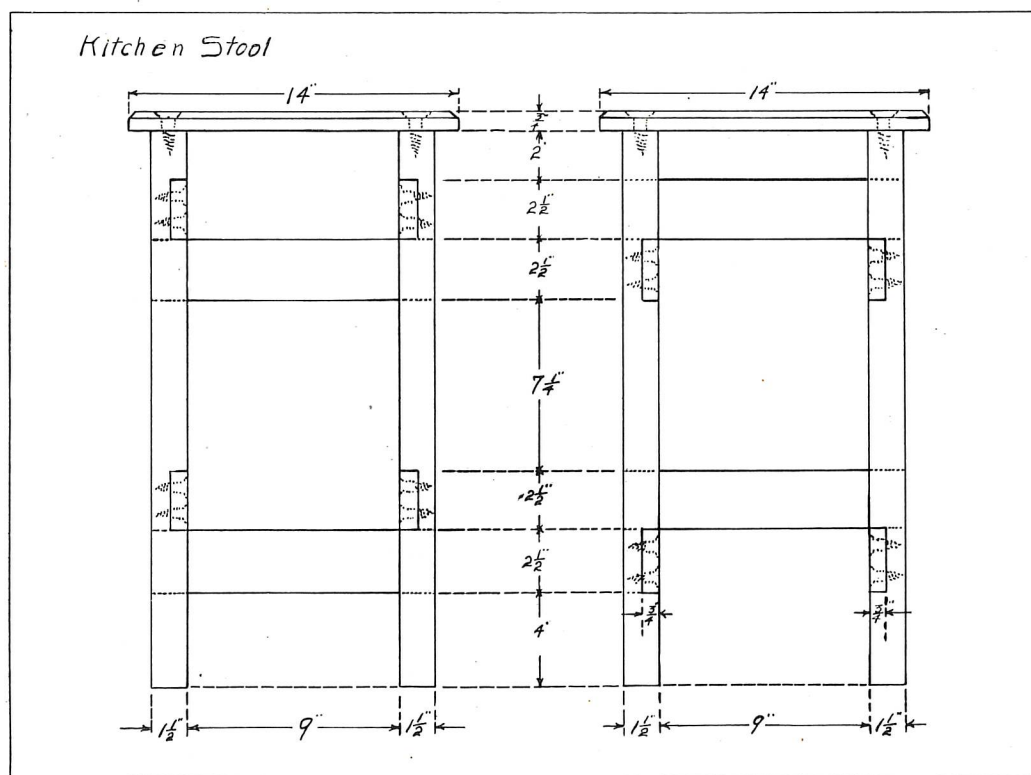
#### A KITCHEN STOOL.

A. Clifford Tagg, Rock Island, Ill.

It is a well established axiom that it should be the aim of every teacher of Manual Training to have models which are useful not only in teaching tool processes but which are serviceable also in the home. The pieces of furniture which are most serviceable usually interest ordinary boys most.

The stool here described and illustrated has been found to meet the requirements of interest and service and is unusually good in teaching the use of the saw, the brace and bit, and the chisel.

The rails in this stool are set into the posts their full thickness and are on the inside of the posts. They are



Details of Kitchen Stool Planned and Made by Students in the Rock Island Manual Arts School.



fastened with glue and two screws. This adds greatly to the strength of the stool. By placing one set of rails higher than the other, you will have foot rests of two different heights. The teacher will find it much easier for the boy to build up two opposite sides of the stool and clean them thoroly before the other four rails are put in.

To place the top, draw lines diagonally between corners of the top. Place the four posts upside down on the top so that the corners of the posts are on the diagonal lines, and mark around the posts. Bore a hole in the center of each post and in the center of each square marked on the top.

## THE NATIONAL SOCIETY CONVENTION

THE EIGHTH ANNUAL CONVENTION of the National Society for the Promotion of Industrial Education which was held in Richmond, Va., Dec. 9 to 12 was, in many respects, the most successful convention which the Society has held. On account of the location the attendance was not so large as last year, but there were other elements which more than made up for the lack of numbers. Persons were present from New Orleans, from Seattle, Wash., Edmonton, Alberta, from Maine and California. Three hundred and fifty persons were present at the annual banquet.

The meeting was unusual in many respects. There was a distinct recognition of the value and desirability of prevocational education; a clear statement of the attitude of Organized Labor in regard to industrial education was made by the President of the American Federation of Labor; a section of the program was devoted to Salesmanship; the recognition of Industrial Education in agreements made between employers and employees was discussed, and the report of a survey of industries and education of a city was received. Perhaps the one feature of the meeting as a whole which impressed itself upon every one was the willingness on the part of every speaker to concede to others the right to their own opinions. There were no sweeping denunciations of schools or types of work. Those who have criticised the Society for being a "closed corporation" found themselves invited to the business meeting and allowed to vote on all questions. They found that the Society has but one aim—the promotion of Industrial Education for the benefit of the persons to be educated.

The following extracts from various addresses indicate the trend of the discussions:

### The Need of Accurate Information.

"The first step forward in producing the trained worker is a careful study of the industry. Not until we have analyzed every occupation and process to determine exactly its content, just as the manufacturer now analyzes his coal or his steel, can we devise effective courses of study or develop sound methods of instruction for the training of tradesmen. We must know what are the occupations into which the industry is divided. We must learn what are the processes and operations that enter into these occupations and what these processes demand of the worker by way of skill of hand, special trade knowledge and general intelligence. We must find out what physical requirements various occupations make upon the workman as to health, strength, endurance, and the like. We must know what are the sources of supply of the workers and the age for most advantageous entrance into the occupation. Not until we have in hand such facts as these can we proceed intelligently in the task of producing trained employees.

"Having done this, further investigation must then be made to determine exactly what things constitute the special knowledge the workman needs to have and what is the character, quality, and degree of manipulative skill he must possess.

"How far does the industry under present conditions give the worker the required knowledge and skill? In many lines of manufacturing today there is a sad lack of competent workers. Such knowledge and skill as most workmen possess, however, in some way they have picked up in the work. In setting up a school for the training of tradesmen, therefore, information must be had as to what

the trade itself can contribute and what the school must supply. We can obtain such information only when, thru a survey of the occupations, we have found an answer to these questions.

"Before organizing schools for any industry we should be in a position to know how far such an industry can be reorganized so as to give the required training within the industry itself. Many workers are lacking in the knowledge of some one or two specific processes or operations of the occupation in which they are engaged. To make them efficient in that special work all they need for the time being is specific instruction given in a few lessons which aim to supply the required information."

*Wm. C. Redfield, Secretary of Commerce, President of the Society.*

### Attitude of Organized Labor.

"If the American workman is to maintain the high standard of efficiency, the boys and girls of the country must have an opportunity to acquire educated hands and brains, such as may enable them to earn a living in a *self-selected* vocation and acquire an intelligent understanding of the duties of good citizenship.

"No better investment can be made by taxpayers than to give every youth an opportunity to secure such an education. Such an opportunity is not now within the reach of the great majority of the children of the wage-workers. The present system is inadequate and unsatisfactory. Only a small fraction of the children who enter the lower grades continue until they complete the high school course. The reasons which seem to be the prime causes for withdrawal are first, a lack of interest on the part of the pupils; and secondly, on the part of the parents, and a dissatisfaction that the schools do not offer instruction of a more practical character. The pupils become tired of the work they have in hand and see nothing more inviting in the grades ahead. They are conscious of powers, passions and tastes which the school does not recognize. They long to grasp things with their own hands and test the strength of materials and the magnitude of forces.

"The American labor movement appreciates the fact that experience has shown that education, industrially, is but one phase of the growing recognition of labor's rights, and that in this respect it is closely related to all the general work of the trade union movement, the movement which has since its inception stood for constantly increasing better opportunities, better factory and labor conditions, better home life, and the protection of the young and the innocent children from exploitation.

"Organized labor has always been and is now deeply concerned with the well-being of the human family and all the influences that go to make for the advancement of the industrial workers. In our principles and purposes are comprised the fullest scope of human activity. Labor has always manifested its humane interest in the welfare of children; it realizes that industrial education has the same purpose and aims—that is to secure co-operation of all human agencies which make for the betterment of mankind.

"Industrial education, the raising of the age limit of child workers, and compulsory school attendance are necessarily a part of the one great beneficial scheme. Organized labor has always stood for, and has been the pioneer in, the demand for compulsory education in the



elementary grades and for the fullest and freest opportunity in all lines of learning, technology included.

"The subject of education, industrially, concerns not only the wage-earners themselves, but every inhabitant of the nation. It is, therefore, necessary and eminently proper that it be administered by the same authority and agency which administers our school systems and such other institutions as are concerned in the public welfare.

"Organized labor believes that there are pressing educational needs which can be at least partially solved by the introduction of industrial training; it is aware that boys and girls do not always have the opportunity to enter the field of employment which will best contribute to their development either physically, morally or intellectually. Those who leave school change from one unskilled occupation to another, and gain but little or nothing in efficiency. Labor believes that industrial education between the ages of 14 and 16 years ought to awaken in these children a new school interest, and so help retain them in school longer and contribute more to their development; it believes that if such industrial training took the children between the ages of 14 and 16, when they are of little value in a business way, at a time when the education they have received is of advantage so far as it goes, but hardly fits them for actual working places, that it would serve to give them the proper training to prepare and enter some branch of actual vocational work.

"Our movement in advocating industrial education protests most emphatically against the elimination from our public school system of any line of learning now taught. Education, technically or industrially, must be supplementary to and in connection with our modern school system. That for which our movement stands will tend to make better workers of our future citizens, better citizens of our future workers."

*Samuel Gompers, President, American Federation of Labor.*

#### Teaching of Salesmanship.

"The big stores that are achieving notable success and making rapid gains are those that not only furnish honest values at reasonable prices, but which also strive to render an efficient personal service to their patrons. The one-price system has come to stay, together with a liberal policy as to exchanges and the making good of deficiencies of any kind.

"The result of this tendency in the retail field is a growing demand by the stores for properly-equipped sales people. Equipment here might be taken to mean (1) a good elementary education, (2) the right kind of personal qualities and habits, and (3) technical training for the work of the department store. For the young woman possessed of the right combination of qualities and training—and these are not difficult to develop—the opportunities for agreeable work and substantial returns in the big retail houses are numerous and attractive. Good business demands fair and courteous dealing and efficient service, and these in turn demand well-trained employees. The tendencies of modern business are shaping splendid opportunities for young women with vocational training."

*T. K. Cory, Vice-President and Store Manager, Wm. Filenes' Sons Co., Boston.*

#### Types of Schools Needed.

"Among the types of schools presented to the public have been the following: The Evening School, the Part-time or Continuation School, the All-day School. Each of these has a specific value for a specific group which is not possessed by the others. All of them should be included in any comprehensive plan for meeting the needs of young workers in any industrial community.

"The evening school, devised to give instruction to comparatively mature workers (over 17 years of age) in subject matter supplementing the work engaged in during the day, meets the needs of this group in the very best, perhaps the only way in which those needs can be met. Unwilling or unable to forego employment during the day, here in the evening school—by means of the short

unit course, the long unit course, the multi-unit course, or the progressive course—these pupils may find and improve their opportunity.

"The part-time or continuation school, devised to give instruction to those young workers 14 to 18 years of age, already employed in industry who are able or required to give up a portion of their working time to secure further education, possibly meets the needs of this group in the very best and only way. They are too young and immature to profitably undertake evening work after a day's toil. They cannot or will not take more time to get this education. It is a very large group; its needs are many. Here is a way to serve them and the public.

"No single type of all-day school will answer the needs of all these minors. Every State and every municipality should undertake to solve this problem with a full appreciation of the needs of the pupils, but with equal freedom to use the means most readily available. Investment and limitation of funds—endowments and helpfulness of industrial leaders—will all be the factors in determining the best way for a given municipality to undertake this work."

*Robert O. Small, Deputy Commissioner of Industrial Education for Massachusetts.*

#### Industrial Education for Girls.

"The question of industrial education for young girls still causes a good deal of confusion in the public mind. The average person sees in the young girl only the potential wife and mother, for which position she ought to be qualified thru training, and forgets the additional and no less undeniable fact that for an average of seven years she is a bread winner. The shortness of this period in contrast with the twenty odd years of her wifehood and motherhood easily causes the importance of training for those seven years of bread winning to be overlooked, and, in the public mind, places the emphasis exclusively on domestic science training.

"The demand for home training is based on the natural realization of its value to the home and the community, but it is no exaggeration to say that lack of equipment for her years of bread winning brings about results even more disastrous than does now her lack of knowledge of the domestic arts. As a member of the great unskilled and unorganized group, the young girl acts as an underbidder in the labor market, and by accepting poor wages and long hours, by lowering the standard of living, she is instrumental in causing the greatest possible attack upon the home.

"Training for specific vocations, properly handled, is valuable training for home-making. I believe that technical training for a particular line of work may be made broad enough to cover all the relations of life; that it is not so much what you teach as how you teach it; that in general the woman with a thoro business training will be a more efficient home-maker than the woman without it, because the discipline and common sense she develops in a regular 'eight hour a day, rain or shine, man sized job' will have taught her that the most important of all vocations demands not incidental attention, but careful planning, systematic effort and self-sacrifice."

*Elizabeth Cleveland, Director of Girls' Continuation Classes, Detroit.*

Officers were elected for the coming year as follows: President, Hon. Wm. C. Redfield, United States Secretary of Commerce.

Vice-President, Cheesman A. Herrick, President of Girard College, Philadelphia, Pa.

Treasurer, Frederic B. Pratt, Secretary Pratt Institute, Brooklyn, N. Y.

#### The Richmond Survey.

The idea of a Survey as a part of the Annual Convention of the Society was suggested at the close of the Grand Rapids meeting. The feeling was general that the Convention could be made of greater value if its discussions could be based on a better knowledge of condi-



tions and deal more directly with specific questions. The School Board of Richmond met the conditions proposed by the Executive Committee of the Society and an agreement resulted.

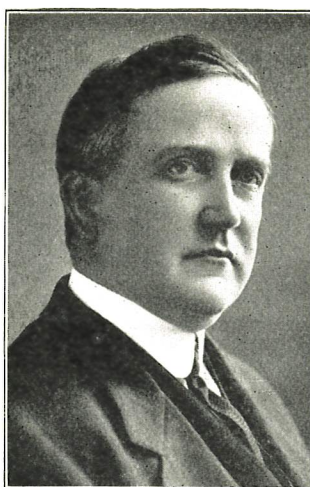
The agreement provided for a General Survey Committee to have direct charge of the Survey and a Local Survey Committee made up of citizens of Richmond to co-operate. At the outset the General Survey Committee which directed the conduct of the Survey, consisted of the following: Dr. Leonard P. Ayres, Director Russell Sage Foundation, Chairman; Mr. Charles H. Verrill, Chief Editor, U. S. Bureau of Labor Statistics; Mr. L. W. Hatch, Chief Statistician New York Bureau of Labor; Dr. J. A. C. Chandler, Supt. of Schools, Richmond, Va.; Prof. C. R. Richards, Director of Cooper Union, New York; Mr. Chas. H. Winslow, Special Agent United States Bureau of Labor Statistics, and Mr. C. A. Prosser, Secretary of the National Society.

For the purpose of dealing with the "Recommendations of the Survey" there were added to the General Survey Committee the following persons: Mrs. Mary Schenck Woolman, formerly Director Manhattan Trade School for Girls and Professor of Domestic Art, Teachers College; Miss Laura Drake Gill, President College for Women, University of the South, Sewanee, Tenn.; Dr. P. P. Claxton, U. S. Commissioner of Education; Prof. R. W. Selvidge, Peabody College, Nashville, Tenn.; Mr. Arthur D. Dean, Chief Division of Vocational Schools, Albany, N. Y.; Mr. M. P. Shawkey, State Supt. of Free Schools, West Virginia; and Dr. Wm. M. Davidson, Supt. of Schools, Pittsburgh, Pa.

The Survey met with the hearty co-operation of the school authorities, principals and teachers, the labor unions, commercial organizations, factory owners and operators. This co-operation enabled the workers to accumulate considerable information and many statistics which would otherwise have been inaccessible.

The report is presented under two headings, "findings" and "recommendations." In considering the report, it should be remembered that the report deals with two distinct propositions, facts and opinions. The statements of numbers in different occupations, wages, etc., are matters of fact and are entirely authentic and unquestionable. In those matters dealing with operations, necessary training, what schools should do, etc., the report is an expression of opinion, and is presented as such.

Three large charts were presented giving the findings about operations in the tobacco industry, the occupations in the metal and building trades. The chart of the printing trades was not completed in time for distribution at the meeting. The findings about the occupations give an analysis of the operations in each trade, the product, im-



MR. C. A. PROSSER,  
Secretary, National Society.



HON. WM. C. REDFIELD,  
President, National Society.

portance of the trade, conditions of employment, wages, hours of labor, seasonal activity, extent to which trade is organized, entrance age, years required to learn the trade, demand for labor, etc. The findings about education for the occupations include such information as education, general and specific, needed to properly equip worker for the trade, common deficiencies of workers, what school ought to give, etc.

The charts are of great value to persons attempting to advise young persons concerning occupations. Information of this character is essential to intelligent counsel regarding a vocation or trade.

The complete Report with the detailed Findings and Recommendations as submitted to the Richmond authorities will be mailed to members of the National Society for the promotion of Industrial Education. Others can secure them by writing to Dr. Royal Meeker, Commissioner of Labor Statistics, Washington, D. C., for bulletin No. 162 of the United States Bureau of Labor Statistics.

Following are some of the recommendations of the committee, based upon the findings:

#### Types of Schools Recommended.

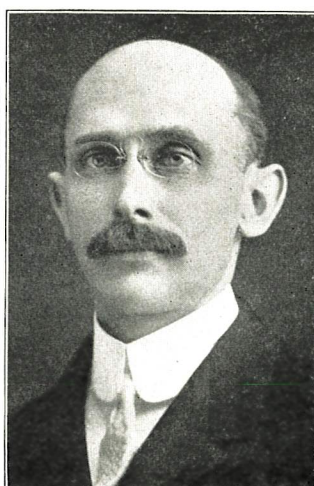
"It is recommended that schools and courses for boys and men already employed should find expression in two great groups: (1) evening schools, (a) of the industrial order and (b) of the general order; (2) part-time schools, (a) of the industrial order, (b) of the general order. Schools of the industrial order should take most decidedly the trade extension aspect. The work which the men and boys elect in the school whether it be of the part-time or evening order, should supplement the day employment and the courses of study should be built upon the shop experience of the employed boys and men who attend.

"Schools or courses of the general order should take varying forms. Some will give merely further general education to those whose daily experience offers no basis upon which to build trade extension courses. Others will give shop or drawing or laboratory experiences of various types and to a varying degree to those who hope thru such work to find an occupational purpose in life more satisfying than their present employment. Evidence points clearly to the fact that while there is a need for both evening school work of the general order and of the trade extension order, at the same time these two fields of educational effort are to be kept distinct and the purposes and methods are not to be confused.

"The evidence points out that the evening trade extension courses constitute the best approach to the full program of schools and courses which may be finally established for men and boys. The employers favor evening work in preference to part-time work for their apprentices. The workers themselves have indicated a desire for evening instruction which will supplement their daily shop



MR. FREDERIC B. PRATT,  
Treasurer, National Society.



MR. JESSE A. DAVIS,  
President, National Vocational  
Guidance Association.



experience. Both state that promotion will result from these evening supplementary courses.

"The Committee wishes to emphasize particularly the type of evening instruction which will make a direct appeal to employed men and boys. The following points need special consideration:

#### Kinds of Instruction Needed.

"(1) Instruction must deal with two rather distinct classes. (a) Students proper—consisting of the small minority who seek both general and specific education with a definite student purpose, but often under rather unusual personal conditions. (b) The non-student class consisting of the large majority, who, by suggestion and counsel need educational help in the solution of some present problems which will fit them for special service.

"(2) The scheme of work offered must make various features of the course of study elective to a maximum degree.

"(3) The work must be flexible enough in its adaptation to meet individual, special and even transient needs and conditions.

"(4) The subjects must be presented in small and varying units.

"(5) The various units of work must be so scheduled that sequential arrangement of courses is possible when it is desired.

"(6) All forms of work must glow with the socialized element.

"(7) The work must seek to increase the student's capacity to live efficiently and largely as well as promote the accumulation of technical knowledge and the development of manipulative skill.

"(8) Much stress must be laid on the teaching itself. By suggestion and personal co-operation, the teachers can awaken and develop to a wonderful degree, the mind rendered mentally inactive by former disassociation with educational forces.

"(9) The work must have its own distinct ideals, methods and estimates of value. It must be based upon the current conditions and individual needs of the non-student class rather than on regular school standards which are primarily applicable to the student class."

#### Courses for Boys About to Leave School.

"The Survey shows that there is a demand in Richmond for prevocational training for children over 13 years of age and no demand at present for any type of all-day industrial or trade school, preparing a relatively few for special occupations or trades. In view of the comparatively small cost of prevocational work and the limited resources which at the present time seem available, the prevocational school will reach and serve the needs of a much greater number of boys and girls than will the special industrial or trade school.

"Your Committee therefore recommends that the Richmond schools develop, as rapidly as possible, schools or classes in prevocational training, admitting boys who have completed the work of the 5B grade and who look forward to leaving school at a relatively early age in order to go to work, and who need the help of the school in reaching a decision as to what line of work they may enter with the greatest prospects of success. In no sense is this school to be considered as a provision for defective, delinquent, or incorrigible boys. The rank of the proposed school should correspond to the last two years of the regular elementary school course, and should require the same amount of time for the completion of its work.

"The course of study must be a varied one if it is to help boys to find themselves and enable them to make an intelligent choice of work in the future. What is needed is not a course in woodworking or a course in metal work, but rather an organized training in practical arts which will include a variety of experience in the industries fundamental to the life of the community. Woodworking, metal work, printing and bookbinding, and electrical construction are some of the industries in Richmond

which give an opportunity for experience in certain fundamental processes which are most valuable to boys, without respect to the occupation in which they may later engage. A plan for such industrial work should consist of a series of jobs, projects or enterprises which in their accomplishment will give the boy an appreciative understanding of the more important industries.

"One-half of the time in school should be given to related work in language, mathematics, industrial geography, industrial history, and, in general to preparation for active and intelligent understanding of civic and social responsibilities. If the interests and capacities of the boys are to be properly tested, the experience in the shops must be as real as possible. In this connection it is important that they have an opportunity to become acquainted to as great an extent as possible with the actual operations of the industry.

"Instructors must be men who possess not only a general acquaintanceship with, and knowledge of, the industries represented in the courses of study, but they should give evidence of ability to make intelligent research into, and study of the progress in methods and processes of work in the industries."

#### Types of Schools and Courses of Study for Girls and Women.

"The large effort of vocational education for the girls and women of any community should be to prepare them as far as possible for economic independence. Instruction in home economics, except in specialized courses planned and followed for the purpose of earning a livelihood, should not be regarded as vocational education for wage earning, but as a necessary and valuable part of general education to which every girl is entitled as a part of her adequate preparation for living.

"There is a need in Richmond, as shown by the proposal of the Retail Merchants' Association and the reports of the workers thru interviews for evening classes in salesmanship which shall very largely give their attention to training mature young people who are already employed during the day in the stores. There is also a great need for department store salesmanship training, thru part-time and continuation classes.

"There is at the present time no need or possibility of a girls' trade school for Richmond. There does exist, however, a need or a demand for courses of training in the practical arts as a part of the general education of girls over 13 years of age. This should begin with prevocational courses in the upper grades of the elementary school. Should the plan of a junior high school for pupils 13 to 16 years of age be adopted, this prevocational training for girls should be made a large feature of the work of this school.

#### Prevocational Courses for Girls.

"It is recommended that there be established schools or classes in prevocational work for girls, covering the period corresponding to the last two years of the elementary school. These courses should be operated with the following purposes in mind:

"(a) To serve as a self-discovery and vocational guidance course, giving to the girl who must leave school early a better basis for selecting the vocation which she may enter.

"(b) To give those girls who go on to the high school an opportunity to choose a more intensive practical course in the high school for which they are best fitted. Should a junior high school be established, as seems probable, the third year of the course in the school might well be given to a more intensive pursuit of some one line of practical work. The prevocational training of the first two years would prepare her to make an intelligent choice of this course.

"(c) To offer a course of study which will make a strong appeal to the interest of the pupil, thus tending to hold her longer in school.

"What is needed is not longer courses in cooking, sewing or typewriting, but an organized training which



will include a variety of experiences drawn from the occupations which are open or should be open to the girls in the life of the community.

"The course of study should give the girl an opportunity to try herself out in such activities as cooking, serving, first aid to the injured, household decoration, plain and machine sewing, simple garment-making, printing, bookbinding, novelty work, typewriting, elementary stenography and the keeping of simple accounts.

"One-half of the time in school should be given to the so-called academic branches, which should be made of direct application to the practical work and every-day problems of the girl. Among the subjects which should be taught are English, arithmetic, history, civics, commercial geography and an elementary treatment of the personal, social and economic problems of the girl which would include such topics as personal hygiene and health, conduct in social and business relations, wages, hours of employment, use of leisure time, personal and family budgets, savings, insurance and efficiency. The study of art and design should be taught so as to develop the artistic sense often called 'good taste,' which is so essential in women's activities in order that special abilities along the line of industrial arts may be discovered."

#### Conference on Training of Teachers.

This Conference was called to order by Dr. W. T. Bawden, Specialist in Industrial Education, United States Bureau of Education. The speakers of the evening were L. D. Harvey, President of Stout Institute; Lewis Gustafson, Superintendent David Ranken, Jr., School of Trades; and Charles R. Allen, Agent for Industrial Education, Massachusetts State Board of Education. Mr. Gustafson stated that the teacher must know his trade and preferred a teacher with several years of practical experience and as much education as possible. Mr. Harvey suggested that trained teachers might be placed in industries for a period to gather practical experience and viewpoint. He also told of the arrangements which have been made to place graduates of Stout Institute in productive shops to gain this experience. Mr. Allen explained the details of the plan whereby Massachusetts is training skilled journeymen mechanics to become teachers.

The general opinion of those present seemed to be that we must do the best we can with the teachers we can get, and hope for better; that both technical knowledge and practical experience, together with teaching ability, are necessary qualifications of teachers; that the point of view and proper habits of thought on the part of teachers should be cultivated; that some means should be provided for practice teaching; and that teachers must know how to analyze processes both mental and mechanical. Considerable emphasis was given to the need for better salaries of industrial teachers.

At the close of the meeting, the discussions were summarized by Professor C. A. Bennett, of Peoria, Ill., and a short talk was given by Mr. C. A. Prosser on the need of finding suitable positions for teachers properly trained, and of the necessity of higher salaries for such teachers.

#### Vocational Guidance Conference.

The National Vocational Guidance Association held its fourth Annual Conference in Richmond on Monday, Tuesday and Wednesday immediately preceding the meeting of the National Society for the Promotion of Industrial Education.

The program was on the general theme "Practical Features of Vocational Guidance" and several excellent addresses and papers were presented. Several speakers who had been announced failed to appear.

For some reason, the attendance at the meeting was unusually small, considering the prevalent interest in the subject of Vocational Guidance and the fact that the Association is a national organization. About one hundred persons were present and enrolled at the meeting. There was a lack of that earnestness and enthusiasm

which should permeate the discussions of so vital a subject.

At the business meeting, which was anything but businesslike, the following officers were elected after the casting of a unanimous ballot which was not unanimous, reconsidering and then casting of individual ballots, after considerable parliamentary confusion:

President, Mr. Jesse B. Davis, Grand Rapids, Mich.; Vice-President, Miss Anne S. Davis, Chicago; Secretary, Miss Edith Campbell, Cincinnati; Treasurer, Mr. James S. Hiatt, Philadelphia.

Executive Council—Mr. Frank M. Leavitt, University of Chicago; Mr. Charles A. Prosser, Secretary National Society for the Promotion of Industrial Education; Mr. A. W. Dunn, Washington, D. C.; Mr. F. B. Dyer, Boston, Mass.; Mr. Meyer Bloomfield, Boston, Mass.

#### A CONFERENCE ON TRAINING TEACHERS.

NOVEMBER 19, 20 and 21, a Conference of fourteen persons interested in the training of teachers for industrial schools was held in Chicago. This Conference was first called three years ago by Mr. C. A. Bennett of Bradley Institute, Editor of the *Manual Training Magazine*, and has continued to be limited largely to persons connected with Bradley Institute or the Magazine. The members have felt that its chief advantage has been the limited numbers and consequent free and open discussion. The general sentiment of the conference was that there is as yet no scheme or plan which may be generally accepted as the final word regarding the training of teachers.

Those present were: C. A. Bennett, Peoria, Ill.; Wm. T. Bawden, Washington, D. C.; F. M. Leavitt, Chicago, Ill.; F. D. Crawshaw, Madison, Wis.; C. S. Van Deusen, Kent, O.; I. S. Griffith, Columbia, Mo.; R. W. Selvidge, Nashville, Tenn.; Oscar McMurray, Chicago, Ill.; Hans Schmidt, Oshkosh, Wis.; M. L. Laubach, Terre Haute, Ind.; C. A. Bailey, Cedar Falls, Ia.; A. C. Newell, Normal, Ill.; George F. Buxton, Menomonee, Wis.; Mr. Whitcomb, Oxford, O.

#### GENERAL NEWS NOTES.

CHICAGO, ILL. A series of businessmen's lectures has been put into operation in the local high schools by Mr. William Bachrach, Supervisor of business courses. During the year, lectures will be given daily as far as possible and the subjects will deal with the various trades and lines of business in which students may enter.

CADILLAC, MICH. The boys of the Manual Training Department have completed aisle boards for the use of the art department, a press in which to press specimens for mounting in botany work and a half dozen tables for use of the teachers. In addition, a cement floor, 43 feet by 21 feet has been placed in one of the schoolrooms and an annex. The rooms will furnish additional space for the Manual Training Department.

SPOKANE, WASH. To provide a clean, smooth playground the boys of the Adams School Manual Training Department recently completed a home-made playground. Where formerly a loose, brush-covered playground was in evidence, there now appears a smooth, hard-packed earthen floor. The play apparatus, consisting of six swings, horizontal bars, flying rings, see-saws, inclined ladders, ropes, spar ladders, is the product of the manual training department.

MINNEAPOLIS, MINN. The third-term students of Domestic Science, at the Central High School, have begun a practical study of laundry work in connection with their course. The school provides the necessary equipment of stationary tubs, driers and electric irons, and the students bring their own clothes to class.

To help the students in the high school to select the trades or occupations for which they are fitted, the school board of Waukegan, Ill., has established a vocational bureau.



# NOW, ARE THERE ANY QUESTIONS?

Readers are urged to ask questions concerning the Industrial Arts. The editors will reply to those questions which they feel that they can answer, and to other questions, they will obtain replies from persons who can answer them authoritatively.

Questions should be addressed to THE EDITORS.

## Copper and Metal Work.

*San Francisco, Cal.* Q:—Will you tell me where I can obtain an instructive book on copper and metal work?—O. R. D.

A:—*Copper Work*, by A. F. Rose. \$1.50. (Atkinson, Mentzer & Co., Chicago), and *Art Metal Work*, by A. F. Payne, \$1.50, (Manual Arts Press) can be heartily recommended.

## Manual Training Equipments.

*Tarboro, N. C.* Q:—Where can I find lists of equipments for small schools and rural communities starting Manual Training?

A:—There is an article on this very subject in the October number of *The American School Board Journal*, Milwaukee, Wis.

## Convention Dates.

*East St. Louis, Ill.* Q:—Has the time been set for the meeting of the Illinois Manual Arts Association?

A:—February 12 and 13 are the days set for this meeting at Danville.

## Art Metal Work and Jewellery.

*Rochester, N. Y.* Q:—Will you kindly give me the names of some good books on Art Metal Work and also on Jewellery?

A:—See above. There is no satisfactory book on Jewellery.

## Leather Goods Firms.

*South Haven, Mich.* Q:—Can you inform me of a firm in Chicago handling leather goods, colored sheep skins especially?—E. F. C.

A:—Leather goods and hides for all sorts of purposes, particularly for tooling and binding, may be obtained from the following Chicago firms:

Richard Young & Co., Franklin and Lake Sts.

Wilder & Co., 228 W. Lake St.

Schoellkopf & Co., 241 W. Lake St.

## Drawing and Mathematics for Woodworking Classes.

*Dubuque, Ia.* Q:—Can you recommend a course in drawing and mathematics suitable for evening classes of woodworkers and other mechanics?

A:—The best books we have seen on these subjects are the ones written especially for the Extension Division of the University of Wisconsin, "Shop Mathematics," in two parts, and "Shop Sketching." These books may be purchased from McGraw-Hill Book Co., of New York.

## Vocational Education, Industrial Education and Manual Training.

*Oregon.* Q:—Can and will you furnish me with a list of books on the following subjects: Vocational Education; Vocational Guidance; Industrial Education; Economics of Manual Training; Theory and Practice of Manual Training; Methods in Teaching Manual Training?

A:—Would suggest that you obtain a copy of "A List of Helpful Publications Concerning Vocational Education," University of the State of New York Bulletin, No. 569. We know of no book on the Economics of Manual Training written within the last few years. "Economics of Manual Training" by Rouillion does not give present day prices, altho the lists of equipment are quite complete. For theory and practice, would suggest publications of Manual Training Associations. For methods in Teaching the current articles in THE INDUSTRIAL-ARTS MAGAZINE by Prof. Crawshaw, are excellent.

## Costume Design.

*Melrose, Mass.* Q:—Can you inform me of a book, or books, which deal with the subject of Costume Design in much the same manner that Miss Ethel Traphagen has treated it in your December INDUSTRIAL-ARTS MAGAZINE?—H. M. A.

A:—These two books will be found valuable: *Industrial Drawing for Girls*, by E. C. Hammond (Redfield Bros., New York City); *Two Centuries of Costume in America*, by A. M. Earle, (Macmillan Company, New York); *The Model and Costume Charts*, by Florence M. Bigelow (Wald-Craft Company, Indianapolis), will be found helpful.

## Charcoal Fixative.

*South Whitley, Ind.* Q:—Will you please inform me of the best way of making a charcoal fixative?—H. L. H.

A:—A fixative may be made by adding to a pint of alcohol about four ounces of white shellac liquid varnish and allowing it to stand until the upper part becomes a clear amber color, when this clear solution may be poured into another bottle and applied to the drawing with an atomizer. The solution should not be heavy enough to leave a gloss over the drawing when dry. If a mixture of the shellac and alcohol is used in place of a solution a light powder will show on the drawing, which is objectionable. A pipe atomizer suitable for the application of the fixative may be secured of any Art dealer.

## Dimensioning Drawings.

*Safford, Ariz.* Q:—Which of the two methods of dimensioning illustrated on the enclosed sheet is proper, if there is any preference?—R. S. D.

A:—It seems unnecessary to reproduce the illustration, which represents dimension lines in light continuous lines, and in dashes.

Conventions in mechanical drawing are well established, but are not implicitly followed in practice. Dimension lines are usually represented by dashes rather than by continuous lines to distinguish them from full or continuous lines used to represent the contour of the object drawn. In trade practice light continuous dimension lines are often substituted for broken dimension lines because they are more quickly drawn.

The most common conventions are to represent contours by full continuous lines; invisible-contours by broken lines of short dashes; shade-lines by heavy continuous lines; center-lines by alternating long and short dashes; dimension lines by broken lines of long dashes; extension lines by broken lines of dashes of medium length. It is advisable in school practice to insist upon these conventions in order that complicated drawings may not be confused.

## Works on Bookbinding.

*Park River, N. D.* Q:—Can you advise me of some good textbooks or treatise on the subject of "Bookbinding," such that could be used for school work other than the articles by Nancy Beyer in the INDUSTRIAL-ARTS MAGAZINE?—G. M. H.

A:—The two best works on bookbinding, for schools and teachers, now on the market are:

*Vaughn's Printing and Bookbinding.* \$1. Public School Publishing Co., Bloomington, Ill.

*Douglas's Bookbinding and the Care of Books.* \$1.35. The Inland Printer Co., Chicago.